ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. XLVII | OAK PARK, ILL., JUNE, 1925 | No. 6

ILLINOIS MEDICAL JOURNAL

Published monthly by the Illinois State Medical Society under the direction of the Publication Committee of the Council.

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Send original articles and all communications relating to advertisements to Dr. Charles J. Whalen, Editor, 6221 Kenmore Avenue, Chicago.

Membership correspondence to Dr. Harold M. Camp, Monmouth, Ill.

Society proceedings and news items and changes in the mailing list to Dr. Henry G. Ohls, Managing Editor, 7626 Bosworth Avenue, Chicago.

Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

Subscription price of this Journal to persons not members of the Illinois State Medical Society is $3.00 per year, in advance, postage prepaid, for the United States, Cuba, Porto Rico, Philippine Islands, Hawaiian Islands and Mexico. $3.50 per year for all foreign countries included in the postal union. Canada, $3.25. Single current copies, 35 cents. Back numbers, after three months from date of publication, 50 cents.

Editorial

THE QUINCY MEETING

The 75th annual meeting of the Illinois State Medical Society adjourned May 21, 1925, after what might be justly termed the most interesting session held in recent years.

There was a splendid attendance in spite of the fact that the meeting was held only four days before the opening of the A. M. A. and the additional fact that it occurred concurrently with the European tour of the Tri-State Medical Society.

From the scientific standpoint the papers and discussions at this meeting were of a very high average. It would be quite impossible to give a complete program of the work that was discussed in the various sessions; for these included a range of topics which included the practice of medicine, general and abdominal surgery, obstetrics and gynecology, ophthalmology, laryngology, otology and rhinology, diseases of children, pharmacology and therapeutics, pathology and physiology, stomatology, nervous and mental diseases, dermatology and syphilology, preventive and industrial medicine and public health, urology, orthopedic surgery, gastro-enterology and proctology.

The house of delegates met regularly and transacted a great amount of business. There was a remarkable absence of dissension or disagreement among the members of the house of delegates. Concerted convictions on politics, a unity of purpose were characteristics of the activities of the house of delegates. The reports of the numerous elective and appointive committees were the best ever presented to the house of delegates and demonstrated conclusively that the councilors and members of the various committees presenting the reports are alive to the problems confronting the profession.

This meeting was the diamond jubilee celebration of the Illinois State Medical Society as well as the seventy-fifth anniversary of the Adams County Medical Society. The uniform courtesy

and warm cordiality of the doctors of Quincy and the Adams County Medical Society and their matchless efforts to make the diamond jubilee celebration a memorable occasion, were indicative for the universal desire among members of the medical profession for a united state organization.

An incident that dampened the ordor of the attending members was the absence of Dr. L. C. Taylor, the president of the Society, who was unable to attend because of illness. Appropriate resolutions expressing the good wishes of the members in attendance for Dr. Taylor's speedy recovery were unanimously adopted by the house of delegates and a copy ordered sent to Dr. Taylor at his home in Springfield.

Dr. Mather Pfeiffenberger of Alton, was elected president-elect. Dr. J. C. Krafft of Chicago becomes the active president of the Illinois State Medical Society. Dr. Harold M. Camp, of Monmouth, was re-elected secretary. The names of other officers and the proceedings of the house of delegates will appear in the July issue. We are confident that the newly elected officers will carry on a strenuous campaign of efficiency in behalf of the interests of the profession that has characterized the term of the predecessors.

I AM SURE THAT DOCTORS WILL BE GLAD TO DONATE THEIR SERVICES. SOCIAL AND WELFARE WORKERS CONSIDER THE MEDICAL PROFESSION AN ELEEMOSYNARY ORGANIZATION.

Dr. C. D. Selby, the newly installed president of the Ohio State Medical Society, in his inaugural address, 1925, condemned the present day trend of health departments to enter into general practice of medicine and wound up by referring to welfare workers and social uplifters as follows:

"What has already been said about departments of health applies more or less to social and welfare workers in general. If any real menace exists, it is in the socialization of medicine by the voluntary health and welfare agencies."

As an effective illustration of the unbalanced welfare trend Dr. Selby told of an occurence in a typical Ohio city where "child welfare" was being emphasized. One of the prominent "social-minded" women leaders of the community called upon the president of one of the men's civic luncheon clubs and stated something as follows: "Most of the civic clubs have fine programs of work—the such and such club is interested in the crippled child; the such-other club is interested in the under-nourished child; the such-other club is interested in the child with restricted opportunities; and still another club is interested in fresh-air camps and recreation grounds. I have a splendid suggestion to make to your club. Why not adopt as your program a movement to see that every child in the community has a chance to have his tonsils removed? I'm sure the doctors will be glad to donate their services."

SOMETHING IS WRONG WITH OUR PRESENT DAY MEDICAL EDUCATION? IS OUR MEDICAL EDUCATION COURSE TOO HIGHLY TECHNICAL?

Dr. William D. Haggard, president of the American Medical Association, before the House of Delegates of the A. M. A. at Atlantic City, June 25, 1925, spoke of our present day medical education problem as follows:

Mr. Speaker and Members of the House of Delegates:

Medical education in the United States has had the most remarkable change in the last fifteen years that has ever been witnssed. It was inaugurated by the work of the Council on Medical Education of the American Medical Association, and the survey made by the Carnegie Foundation for the Advancement of Teaching in 1910. Nothing can be added to the medical course at the present time. It is very complete, and if there is any criticism at all, it is probably too highly technical. Not much relief can be expected from the medical colleges themselves, as they are doing the best they can. It should be the function of the House of Delegates, which is the legislative body of the American Medical Association, to make some effort to curtail the length of medical education at the present time, not with the view of making it less complete, but of encompassing it in a shorter time. It is well known that the average age of the men entering practice now is 27 or 28, which is too advanced an age. Economic conditions prevent a man from carrying the financial load so long. Many of them do it with large debt to hamper their early years of practice, and some become

discouraged and fall by the wayside. Some plan should be evolved by the House of Delegates that will save one or two years in the average time at which the medical student enters medicine. One year, at least, could be saved in the high school This is being done in many high schools by the four quarter period during the year, without a compulsory three months annual vacation, so that a student can save that time, and graduate at an average age of 16 or 17. Most of the work in the first year of high school is an epitome of the work in the grammar school. The first year in college is largely a review of high school. In the medical schools the work could be accomplished in three, three and a half, or three and three-quarters years, if two things were provided: First, the four quarter system, which certainly a few schools can manage very easily, and, second, some changes and uniformity in the requirements of the state boards of licensure about the period requisite for graduation.

HEALTH EXPOSITION AND BABY SHOW

Health Exposition and Baby Show can be on a scientific ethical basis and be successful. This has just been demonstrated in Chicago. Such expositions should be conducted under the sponsorship of the local county or state medical societies. This is the protective wing under which educational activities belong. The Illinois State Medical Society has just proven this in Chicago.

Where a blow at lay dictation of infant welfare and a practical demonstration of the self sacrificing generosity of the medical profession found spectacular delivery through the successful first annual health exposition sponsored by the Illinois State Medical Society.

Laid on so firm a foundation, there is no question but that this exhibition should be held annually. From a standpoint of public welfare the baby show of the exposition alone makes this point evident. While the physicians in charge donated to over 10,000 babies a physical examination that would have cost $100 elsewhere, or practically a million dollars worth of professional services, there is another item to be reckoned with. Outside from the actual physical gain to the children themselves, and to those children of acquaintances who will have relayed to them through the next few years, takes of the experiences and instructions received at this show, there is yet another angle to be considered.

While the examining physicians as individuals received no cash remuneration from any of the applicants every doctor even those indirectly connected with the exposition feels amply repaid through the knowledge that this exhibition was an unusual educational center. There was loosed at this conference more vital, emphatic information about health and disease than could have been disseminated otherwise over a period of years. Facts and conditions set forth there went directly from doctor to individual . . . there were no lay agencies intervening a supervising.

Further, in the public press throughout the country, the Illinois State Medical Society rereived due credit for its labors in the way of public welfare education. Clippings were sent in from every state in the union with commendatory comment upon this endeavor of the Illinois State Medical Society, and citing the society as a leader among educators in health betterment work.

Such editorial commendation is priceless. No money, not even millions of dollars could have purchased this, except in a subsidized organ.

EXHIBITORS' DIRECTORY

National Baby Congress and Health Exposition, American Exposition Palace, Chicago, May 2-10, 1925, Sponsored and Supervised by the Illinois State Medical Society Enforcing Ethical and Scientific Standards of the American Medical Association.

The committee on medical supervision, Illinois State Medical Society, recommends the following exhibitors to the favorable consideration of physicians.

LIST OF EXHIBITORS APPROVED BY THE ILLINOIS STATE MEDICAL SOCIETY

FOR DISPLAY OF APPROVED PRODUCTS IN THE NATIONAL BABY CONGRESS AND HEALTH EXPOSITION

Chicago, May 2-10, 1925

AMERICAN BARLEY SALES CORPORATION, 77 W. Washington St., Chicago. Distributors of Johnson's Pure Barley Flour for infant feeding and Cream of Barley, for breakfast cereal.

AMERICAN FLYER MANUFACTURING CO., 2225 S. Halsted St., Chicago. (W. O. Coleman, President.)

AMERICAN MEDICAL ASSOCIATION, 535 No. Dearborn St., Chicago. Showing activities of the Association for education of the public. "HYGEIA," a monthly magazine of health for the laity. Bureau of Health and Public Instruction and Bureau of Investigation.

AUBURNDALE GOLDFISH COMPANY, 1449 West Madison St., Chicago. Exhibit aquariums "common and fancy Goldfish, water plants and many other items connected therewith."

BARBEE'S BABY SCALE RENTAL BUREAU AND SALES, 159 S. State St., Chicago, Telephone Central 5164. Reliable safety tray balance scales used for our rental service.

BORDEN FARM PRODUCTS CO. OF ILLINOIS. Sole distributors in Chicago of Borden's "Selected Milk" which sets a new high standard for Chicago's milk supply.

GEORGE BORGFELDT & COMPANY, 5 N. Wabash Ave., Chicago. (Walter H. Rhone.)

GEO. BORGFELDT & Co., New York, N. Y. Sole Licensee and Distributor of the genuine "K & K" Bye-Lo Baby Doll. "Everybody just loves the Bye-Lo Baby."

BOULEVARD BRIDGE BANK OF CHICAGO, Wrigley Building,, donated 2,000 square feet of space to its customers for the exhibition of their products in the National Baby Congress and Health Exposition.

BOWMAN DAIRY CO. Distributors of milk, cream, butter, eggs and cottage cheese. For 50 years the leaders in quality. Select the best for yours! When you drink Bowman's Milk you drink the best milk that money can buy. For 50 years it has been the standard of quality.

CALUMET, THE WORLD'S GREATEST BAKING POWDER. You need not be afraid to let the children have all the home-baked things they want if you use Calumet because it is the purest of all leaveners.

CANTILEVER SHOE COMPANY, 162 N. State St., Chicago. (George H. Lambert, General Manager.)

THE CELOTEX COMPANY, 645 N. Michigan Ave., Chicago.

CHICAGO DISTRICT ICE ASSOCIATION, 37 So. Wabash Ave., Chicago. Featuring the advantages of proper refrigeration, with ice, of foods in the home, particularly in relation to its maintenance of nourishing qualities of children's foods.

CHICAGO ICE CREAM MANUFACTURERS ASSOCIATION, 1422 East 67th Place, Chicago. Ice cream manufacturers.

CHICAGO MEDICAL SOCIETY (E. J. Doering). Publisher of the Chicago Medical Society Bulletin and many other medical bulletins and journals.

CHICAGE MEDICAL SOCIETY MILK COMMISSION. Certified milk is a clean, fresh, raw, safe milk for infants and invalids.

CHICAGO MOTOR COACH CO. For clean, comfortable, healthful transportation to and from work ride atop a Motor Bus over Chicago's finest boulevards and through the city's most beautiful parks—it provides daily recreation.

CHICAGO PORTRAIT PHOTOGRAPHERS ASSOCIATION, 509 S. Wabash Ave., Chicago. Photographs of your family and yourself are lasting memories. Have yours taken.

CHICAGO WHOLESALE FISH & OYSTER DEALERS ASSOCIATION, 236 No. Clark St., Chicago. Exhibiting research data relative to food values of fish, oysters and seafoods.

CHIPPEWA SPRING WATER COMPANY, 527 Roosevelt Road. Distributors Chippewa Natural Spring Water, the Purest in the World; Chippewa Ginger Ale, Root Beer and Carbonated Water.

CHRISTIANSEN BROS. DAIRY CO., 2700 No. Campbell Ave., Chicago. Where cleanliness is permanent. We invite your inspection. Learn why a bottle of safe milk is a bottle of health.

CLUB ALUMINUM COMPANY, COOK WITHOUT WATER, and retain the natural health-giving minerals of food. Use Club Aluminum Cooking Utensils. Club Aluminum Co., 1238-50 Fullerton Ave., Chicago, Ill.

CONTINENTAL SCALE CO., 2126 W. 21st Pl., Chicago. Health scales. Your weight is an index to your health. Every well regulated home should have thoroughly dependable scales such as we make.

CORCORAN MANUFACTURING COMPANY, Cincinnati, O. Manufacturers of "Not-a-Toy." Health and Happiness for Baby, relief from care of Mother.

CORN PRODUCTS REFINING COMPANY, 200 E. Illinois St., Chicago. Displayed KARO—featuring its use as a carbohydrate in milk modification for infant feeding—MAZOLA, ARGO and KINGSFORDS CORN STARCHES, and LINIT STARCH.

CRANE CO., 836 No. Michigan Ave., Chicago. Exhibiting a twice-fired vitreous lavatory, a dental lavatory, a baby's bath and a shower bath.

DAIRY DRINK CO., 2825 Lexington St., Chicago. Pure wholesome milk contributes to health. It becomes more palatable and nutritious when combined with chocolate. Drink "D. D."

EARNSHAW KNITTING COMPANY, 325 W. Jackson Blvd., Chicago. "VANTA BABY GARMENTS," manufactured without pins or buttons, guaranteed non-shrinkable; unnecessary to turn baby to put on garments. Recommended by doctors, nurses and hospitals.

H. G. FISHER & COMPANY, 2322 Wabansia Ave., Chicago. Dealing in physicians' supplies.

FOREST GLEN CREAMERY CO. A recipe for pink cheeks and sturdy little bodies. Give your youngsters Forest Glen Milk—Guaranteed Pure. 3737 Southport Ave. Lakeview 1158.

THE HOOVER COMPANY, 1408 Republic Building, Chicago. Oldest and largest makers of electric cleaners. More than a million and a half satisfied users. Only "The Hoover Beats As It Sweeps As It Cleans."

HORLICK'S MALTED MILK CO., Racine, Wis. Exhibit "Horlick's," the ORIGINAL Malted Milk for infants, invalids and convalescents. Also Horlick's Food, their maltose-dextrin milk modifier.

R. C. HULL, 4727½ Ellis Ave., Chicago. Gold Medal Garnishing Knives.

HYDROX CORPORATION. Main office and plant 24th St. at the Lake, Chicago. Manufacturers of Hydrox Ice Cream (purer because carbonated) and Hydrox Gingerale and other carbonated beverages.

HYDROX CORPORATION, 24th Street at the Lake, Chicago. Manufacturers of Hydrox Ice Cream—"Purer Because Carbonated"—Hydrox Ginger Ale and other carbonated beverages.

HYNSON, WESCOTT & DUNNING, Baltimore, Md. Mercurochrome and other pharmaceuticals. The Illinois Bell Telephone Company, 212 West Washington St., Chicago.

J. G. INGRAM & SON, London, England. Manufacturers of Ingram's Transparent Nipples, the standard all over the world. Ernest Monnier, Inc., Boston, Mass. * United States agents.

JANES DIETARIAN CORPORATION, 7088 South Chicago Ave. Janes Chocolate Malted Milk Syrup, Cream of Cocoa Malted Milk, Janes Diet Loaf. Write for circular.

THE JELL-O CO., INC., LeRoy, N. Y., Chicago office 326 W. Madison St. Manufacturers of Jell-O and D-Zerta, (a jelly powder for diabetics). Both put up in commercial and institution packages.

F. W. JONES, 4237 Indiana Ave., Chicago. Cleaning Cream, Massage Cream, Shampoo, Head Lotion (Toilet Goods).

JAS. S. KIRK & CO., 1232 W. North Ave., Chicago. Scientific soapmakers since 1839. Manufacturers of the famous "Jap Rose Health and Beauty Soap," Juvenile Baby Bath Castile, Green Soap for physicians and surgeons and other fine toilet and household soaps. All pure soaps—The Standard of Purity.

J. L. KRAFT & BROS. CHEESE CO., 400 Rush St., Chicago. Manufacturers of Kraft Cheese in tins and in foil. Cheese—a health food, was the keynote of the Kraft Cheese Company display. Samples of cheese and circulars of food facts about cheese were distributed.

KREN & DATO, 936 N. Michigan Boulevard, Chicago. Dealers in real estate.

MATTMILLER, Laundry, 1637 West 22d St., Chicago. The scientific laundering of all washable fabrics.

MELBA MANUFACTURING COMPANY, 4237 Indiana Avenue, Chicago, manufacturing chemists and perfumes. MELBA MANUFACTURING COMPANY maintained an expensive and very beautiful booth during the BABY CONGRESS AND HEALTH EXPOSITION, for free distribution of products of special interest to babies, nurses and mothers.

They were most generous in supplying BABY POWDER, MASSAGE CREAM AND TOILET WATER to the BABY HOUSES for the entire week, and also presented the attending physicians with POWDER SUPPLIES for professional use.

Their samples of MASSAGE CREAM, SHAVING CREAM, SHAMPOO, SKIN LOTION AND PERFUME were much in demand, and this POPULAR FIRM impressed its name firmly in the minds of the thousands of men and women attending the CONGRESS.

BABY O'HARA, the prize baby, won the beautiful MELBA GOLD BASKET, containing CREAMS, POWDERS, BATH SALTS, TALCUMS, PERFUME, TOILET WATER, everything to keep both the young lady and her mother luxuriously groomed for many days to come.

METROPOLITAN LIFE INSURANCE COMPANY, 140 N. Dearborn St., Chicago.

IRA J. MIX DAIRY COMPANY, 361 E. 30th St., Chicago. Mix Mix's milk with your menu. From Country to You in Glass. Call Victory 1040.

ERNEST MONNIER, INC., 127 Federal St., Boston, Mass. U. S. Agent for Ingram's Transparent Nipples.

NATIONAL MILK COMPANY, 2501 Southport Ave., Chicago. Distributors of high grade milk, cream and dairy products.

NESTLE'S FOOD COMPANY, INC., 130 Williams St., New York City. (Chicago Representative, Leon A. Turner, P. O. Box 58). Mfg. Baby Foods, Nestle's Lactogen Milk Food, Malted Milk.

THE NON-PTOSIS SERVICE, 1013 Marshall Field Annex, Chicago. Stands for better health and higher spirits. The support produced in any ptosis garment is a brace that has no equal.

NORTWESTERN STEEL & IRON WORKS, 35 S. Dearborn St., Chicago. Manufacturers of National Pressure Cookers. They save time and money and are endorsed by leading domestic science experts.

NORTH SIDE REALTY COMPANY, 77 West Washington St., Chicago, Dempster Golf Course. Subdivision, Niles Center.

ORANGE CRUSH BOTTLING COMPANY, 4900 West Flournoy St., Chicago. Manufacturing Orange Crush, a fruit flavored carbonated beverage.

THE ORIGINAL ARCHAMBAULT CLEANING & DYEING CO., 1555-2254-3513 West Madison St., Chicago, a method of French cleaning includes sterilization of garments which resists bacteria and promotes health. The health of civilized nations depends upon intelligent use of its advantages.

PELOUZE MANUFACTURING CO., 232 East Ohio Street, Chicago, Illinois. Manufacturers of Infant, Dietetic, Photographic, Household, Postal and Dairy Scales.

PREMIER SERVICE COMPANY, 4406 Broadway, Chicago. Manufacturers of Premier Duplex Vacuum Cleaners. Branches and service stations in principal cities. Cleans floors and rugs for baby's sake.

THE SANITARY DISTRICT OF CHICAGO, Working exhibit of sewage disposal plants in operation. General exhibit of the Sanitary District's activities. Rest Room.

SCHOENHOFEN COMPANY, Manufacturers of Edelweiss Light and Dark Beer (non-alcoholic), Edelweiss Tonic and Green River.

SCHOENHOFEN COMPANY, Chicago. Manufacturers of Green River, the Snappy Lime Drink; Edelweiss Ginger Ale; Edelweiss Cereal Beverage; Edelweiss Lemon, Orange, Cherry and other fruit sodas.

SCHUTTER-JOHNSON CANDY COMPANY, 20 N. Jefferson St., Chicago. Old Nick Candy, a chocolate milk nut candy bar. Mothers and fathers, boys and girls, showed their appreciation of the quality of Schutter's Old Nick candy at the National Baby Congress and Health Exposition by pronouncing Old Nick "for a nickel," the most delicious chocolate nut caramel candy they had ever tasted.

SECURITY ELECTRIC MANUFACTURING COMPANY, 2635 Canton St. Among the exhibitors at the National Baby Congress and Health Exposition was the Security Electric Mfg. Co., manufacturers of Security Electric Heating Pads.

SETHNESS COMPANY, 659 Hibbie St., Chicago. Manufacturers of "Drinkmor," the appetizing hunger and thirst satisfying Dairy Drink. A scientific, dietetic preparation combining whole pasteurized milk, granulated cane sugar, pure barley malt and chocolate.

DRINKMOR MALTED CHOCOLATE MILK. The appetizing hunger and thirst dairy drink.

JOHN M. SMYTH COMPANY, 701 West Madison St., Chicago, dealer in furniture, household furniture, etc.

STANDARD CAP & SEAL CORP., 1200 Fullerton Ave., Chicago. Our Hood Seals protect your milk and cream from flies, fingers, dirt and germs. Hood Sealed Milk is cleaner, richer, sweeter milk.

CHAS. A. STEVENS, 19 N. State St., Chicago. Breeder of Fine Toggenburg Milk Goats, Exhibiting for Brook Hill Farm, producers of Brook Hill Certified Milk. Did you see the goats at the National Baby Congress? Would you like a catalogue of goats for sale? If so, address Chas. A. Stevens, 4704 Kenwood Avenue, Chicago.

STOVER CO., 445 E. Erie St., Chicago. Distributors of "Frigidaire" electric refrigeration.

SUNKIST PIE COMPANY, 2735 Indiana Avenue, Chicago. Manufacturers of pie crust.

TINY TOTTER COMPANY, Penn Ave. and B. & O. Railroad, Dayton, Ohio. Dealer in children's toys. Makers of Tiny Toter for Tiny Tots, Tiny Walker, Tiny Doll Sulky.

UHLEMAN OPTICAL COMPANY, Mallers Bldg., Chicago. Dealer in optical supplies.

SIDNEY WANZER & SONS, 21 E. 30th St., Chicago. Chicago Pioneer Purveyors of Dairy Products—established 1857. Milk from inspected herds on carefully selected farms.

WIELAND DAIRY CO., 3642 Broadway, Chicago. Distributors of Milk, Cream, Butter, Eggs and Cottage Cheese. From country to you in glass. For health's sake, use Wieland's.

WILLIAM WRIGLEY COMPANY, 400 N. Michigan Ave., Chicago. Dealer in chewing gum.

ZION INSTITUTIONS & INDUSTRIES, Zion, Illinois.

PRIZES AWARDED AT THE NATIONAL BABY CONGRESS AND HEALTH EXPOSITION, CHICAGO, MAY 2-10, '25, UNDER THE SUPERVISION OF THE ILLINOIS STATE MEDICAL SOCIETY

GRAND AWARD

Five hundred dollars to the highest scoring boy or girl between the ages of 1 and 6 years. This amount is now on deposit in the Boulevard Bridge Bank, contributed by the Chicago Portrait Photo Association.

Silver cup presented to the mother of the highest scoring child. Contributed by the Chicago Herald Examiner.

Three silver cups to highest scoring boy under 1 year—highest scoring girl under 1 year—highest scoring pair of twins. Contributed by Nestle Food Company, New York, N. Y.

Two hundred dollar Add-A-Pearl necklace to the highest scoring girl in the Healthy Youth Contest (between the ages of 6 and 18 years). Contributed by the Add-A-Pearl Company.

White gold watch, 19 jewel to the highest scoring boy in the Healthy Youth Contest (between the age of 6 and 18 years). Contributed by the Illinois State Medical Society.

Northwestern Railroad and Pullman tickets to and from Eagle River, Wisconsin (summer resort) to the highest scoring woman in the Adult Health Contest (over 18 years of age). Contributed by the Illinois State Medical Society.

Northwestern Railroad and Pullman ticket to and from Eagle River, Wisconsin (summer resort), to the highest scoring man in the Adult Health Contest (over 18 years of ago). Contributed by the Illinois State Medical Society.

Five hundred dollars equity in a lot located in Evanston subdivision to the highest scoring woman in the Adult Health Contest, open to all over 18 years of age. Contributed by the North Shore Realty Company.

DIVISION AWARDS

Division 1, children 6 to 12 months of age—
- Highest scoring boy $25.00
- Highest scoring girl 25.00

Division 2, children 12 to 36 months of age—
- Highest scoring boy $25.00
- Highest scoring girl 25.00

Division 3, children 36 to 72 months of age—
- Highest scoring boy $25.00
- Highest scoring girl 25.00

Division 4, twins 6 to 72 months of age—
- Highest scoring pair $25.00
- 2nd highest scoring pair 15.00

Division 5, triplets 6 to 72 months of age—
- Highest scoring set $25.00
- 2nd highest scoring set 15.00

Division 6, colored children 6 to 72 months of age—
- Highest scoring boy $25.00
- Highest scoring girl 25.00

SPECIAL AWARDS

The following banks gave $25.00 savings account for the highest scoring children in their respective neighborhoods:

Ashland State Bank.
Boulevard Bridge Bank.
Bowmanville National Bank.
Bankers State Bank
Capitol State Savings Bank.
Citizens State Bank of Chicago.
Fidelity Trust & Savings Bank.
Garfield Park State Savings Bank.
Inland Trust and Savings Bank.
Logan Square State & Savings Bank.
Madison & Kedzie State Bank.
Phillips State Bank.
Roosevelt State Bank.
Second Security Bank of Chicago.
State Bank & Trust Company.
Suburban Trust & Savings Bank.
Washington Park National Bank.
West Side Trust and Savings Bank.
Liberty Trust & Savings Bank.

STATUS OF DATA BY COMMITTEE OF THE MEDICAL HISTORY OF ILLINOIS

Data Procured for the Medical History Committee to June 3, 1925

The Chicago Historical Society Library contains histories of the counties covering a period of about thirty years, from 1850 to about 1880, but very little after that.

Fifty-two (52) counties have been covered:

Adams
Alexander
Bond
Boone
Brown
Bureau
Carroll
Champaign
Christian
Clark
Coles
Cook
Crawford
Cumberland
DeWitt
Douglas
Fulton
Hancock
Henderson
Iroquois
Jackson
Jasper
Jefferson
Jo Daviess
Kane
Knox
Lake
LaSalle
Lee
Livingston
Logan
Marshall
Mason
McDonough
McHenry
McLean
Menard
Mercer
Montgomery
Morgan
Ogle
Peoria
Piatt
Schuyler
Scott
Vermillion
Warren
Woodford
Kendall
Sangamon
Stephenson
Whiteside

Fifty (50) remain to be done:

Calhoun
Cass
Clay
Clinton
Marion
Massac
Monroe
Moultrie
DeKalb
DuPage
Edgar
Edwards
Effingham
Fayette
Ford
Franklin
Gallatin
Greene
Grundy
Hamilton
Hardin
Henry
Jersey
Johnson
Kankakee
Lawrence
Macon
Macoupin
Madison
Perry
Pope
Pulaski
Putnam
Pike
Randolph
Richland
Rock Island
Saline
Shelby
Stark
St. Clair
Tazewell
Union
Wabash
Washington
Wayne
White
Will
Williamson
Winnebago

The Chicago Historical Society Library has nothing on the following counties:

Ford
Franklin
Gallatin
Hamilton
Kankakee
Saline
Tazewell

The Chicago Historical Society Library has very little on the following counties:

Carroll
Calhoun
Edgar
Effingham
Fayette
Hardin
Johnson
Lawrence
Mercer
Monroe
Moultrie
Peoria
Perry
Pulaski
Richland
Schuyler
Union
Warren
Washington
White

There is nothing in this library on the following counties up to 1850:

Ford
Franklin
Gallatin
Hamilton
Kankakee
Saline
Tazewell
Calhoun
Johnson

There was an insufficient amount of material at this library on the following counties:

Boone
Carroll
Clark
Crawford
Cumberland
Kane
Marshall
McDonough
McHenry
McLean
Ogle
Sangamon
Schuyler
Perry
Stephenson
Whiteside

Much collateral data has been collected by the Committee. Much remains to be dug out and classified. Every one should help to make this valuable history as accurate and complete as possible. *Doctor, look over your old county records* and send on the data pertaining to pioneer medicine in the Illinois country.

SUPPLEMENT

A portrait of Dr. J. C. Krafft, President of the Illinois State Medical Society, 1925-1926, is inclosed in this issue of the JOURNAL.

Did you know that the deafened have their own particular star? Why, of course! It's Thalia (They'll hear!). Thalia is also the music of joy, who presides over symposia, comedy and pastoral poetry. That is why the deafened are always so cheerful. Hail Thalia! Star of the Deaf!

SUBSCRIBE TO THE LAY EDUCATIONAL FUND

If This Constructive Work Is to Continue Funds Must Be Provided

The fund subscribed a year and a half ago by a comparatively few doctors, for the purpose of inaugurating the Lay Educational Bureau of the Illinois State Medical Society, is exhausted. Not one penny of the original fund was injudiciously spent. Results far-reaching in importance to the medical profession have thus far been accomplished by the Lay Educational Committee.

If the valuable work is to continue, additional money must be forthcoming. An appeal for subscriptions for this worth while enterprise was mailed to members of the profession a few weeks ago.

The lay education campaign cannot be prosecuted without funds; it must be supported by popular subscription. It is hoped that every doctor will subscribe to this worthy cause. Serious disease diverted from the incompetent will result in the saving of thousands of lives and will prevent much permanent invalidism.

This campaign will achieve two great objectives. A gradual, but ultimate restoration of the medical profession to its merited place in the public sympathy and confidence and the inestimable benefits to humanity through the consequent prevention of disease and the preservation of life.

For the convenience of those who have mislaid their letter of appeal from the State Society, we hereby reproduce the pledge card:

Please sign and mail to the Illinois State Medical Society.

To the Officers of the Illinois State Medical Society and Members of the Council:

"I am in accord with the educational campaign, unanimously adopted by the House of Delegates of the Illinois State Society at the 1922 meeting and the plan recommended by the Council of the Society, and as evidence of my desire to cooperate with the officers of the council and of the State Society, I hereby enclose my check for $..... to aid in defraying the expenses thereof:

MAKE CHECKS PAYABLE TO THE ILLINOIS STATE MEDICAL SOCIETY

Name .....M. D.
Street .....
City .....County .....

Sign the above pledge card, make out a check payable to the Illinois State Medical Society and mail both in an envelope addressed as follows:

From
.....
.....
.....

ILLINOIS STATE MEDICAL SOCIETY,
c/o Cashier, Sheridan Trust and Savings Bank,
4738 Broadway, Chicago, Ill.

Below is a list of subscribers from Chicago and Cook County to the Lay Educational Fund as per letter sent physicians early in April soliciting funds and cooperation.

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Correspondence

LAYMAN ENGAGED IN PROTECTING MEDICAL RESEARCH

The American Association for Medical Progress

To the Editor:—I write to ask members of the American Medical Association to give their support to the American Association for Medical Progress. This organization is a real ally in fighting the battles for scientific medicine. The encouraging thing about the movement is that it was founded and is directed by laymen for the protection of medical research. Heretofore we have had to fight this battle alone. The honorary president is Charles W. Eliot, emeritus president of Harvard; the honorary vice presidents are Ex-Secretary Hughes, Bishop Alexander Mann, Cardinal O'Connell, President Ellen F. Pendleton of Wellesley, Ernest Thompson Seton and Owen Wister. The active officers are also nonmedical men of similar high order. Such

an organization can be much more effective than medical men can be in fighting the propaganda against medical research.

This is a movement for which we should be grateful and to which we should give active support.

There are two ways in which we can help:

1. By taking out memberships ourselves.

2. By calling the organization to the attention of laymen who have our confidence, and urging them to join.

I can testify from experience that many intelligent laymen will give their financial support if only the organization and its importance are called to their attention.

The danger of interference with medical research by misguided mischief makers is a real and present one. There are constant efforts being made to hamper it. It comes up almost every year in efforts to enact hostile laws in some state legislatures. This opposition is strongly organized and, what is not generally known, well endowed. It probably had until recently $250,000 of endowment, and it has lately received an inheritance of $325,000 with ironclad provision for a relentless propaganda against experimental medicine. This endowment insures permanence and continuity to this opposition and makes necessary some equally permanent and continuous activity to counteract it. It means that there are $25,000 or $30,000 a year in jobs, whose holders must earn their pay by keeping active. The numbers behind the propaganda are relatively small, but they consist for the most part of misguided sentimentalists and fanatics who are prejudiced and unwilling to accept the truth and whose ammunition is gross and extravagant misrepresentation. These misrepresentations have effect, because there is no efficiently recognized education of the public to counteract them. A very large part of the public will not support the movement when it knows the facts, but it is to a very great degree ignorant of the facts. Education is necessary and highly important. There has never been such a means of educating the public against these antivivisectionists and antivaccinationists and slanderers of the medical profession as is offered by this organization of laymen.

We should take an active interest in it.

I urge the members of our profession to give this unique ally of medical progress their active support in every possible way, to join the association and to make a real effort to interest others in it. Annual memberships cost from $2 to $25; life memberships cost, in one payment, from $300 up. Write for application blanks to the American Association for Medical Progress, 370 Seventh Avenue, New York City.

WILLIAM ALLEN PUSEY, M.D., Chicago.
President, American Medical Association.

SERIOUS LEGISLATION SITUATION

Springfield, Ill., May 29, 1925.

To the Editor:

A desperate effort will be made next Tuesday in the Legislature to pass two Osteopathic bills known as Senate Bills 285 and 288 introduced by Senator Haenisch.

285 amends the Medical Practice Act so that the osteopath may do obstetrics which includes the giving of drugs and operative surgery.

Bill 288 is a similar effort on the part of the osteopaths to do operative surgery.

Now it is imperative each councilor and local committeemen see their senators this week's end and protest against this outrageous attempt to lower the law to meet the demands of the drugless healer.

The present act specifically provides a method that will permit any drugless healer to qualify to practice medicine in all its branches by certain minimum additional education.

This is not satisfactory to the osteopath who but a few years ago was loudly proclaiming that drugs were useless and surgery unnecessary. Now they ask it all, not by the school route, but by an attempt at class legislation.

The bills should be killed on second reading.

The present law requests but 3 years professional training for the drugless healer and 7 years for the medical student, but osteopaths are willing and anxious to exchange the additional years of college for legislative favor.

If the drugless healer desires to qualify as a medical doctor he has the privilege but should not expect to enter by hiding under an attempt to get the legislature to extend to him special privilege.

These bills represent class legislation and is an unwise effort on the part of the proponents

to lower the present law relative to the protection of public health.

Interview your senator personally if possible—at least write or wire him before Tuesday.

J. R. NEAL,
Chairman Legislative Commitee.

P. S.—The Chiropractors were defeated in the House last Wednesday by a vote of 53 ayes and 70 nayes. A full report of this and other bills will be in our next bulletin. J. R. NEAL.

WHY BE A FAMILY PHYSICIAN?

April 23, 1925.

To the Editor: Will you kindly publish the enclosed effusion. The concrete cases cited are true and taken from remarks made to me by a disgusted family practitioner. I asked him why he did not report these things to the proper people in the medical society? He answered, "What is the use?" I believe I convinced him that this was not the proper attitude. I promised him that I would write the JOURNAL citing his troubles in a general way.

Yours fraternally,

"Your worthy JOURNAL has for some time now been lamenting the fact that the general practitioner or family physician is disappearing. Such is undoubtedly the case, but the reasons for this have not been gone into openly and thoroughly. The general practitioner has been driven to do surgery, he has been forced to do things for which he has had no special training and for which special training is necessary. The results in the aggregate are bound to be poor and with the result for one thing that the irregular practitioners flourish. Some of the reasons that the general practitioner must break away from the lines of pure family practice, in order to make a living might be best illustrated by citing some cases. These occurred in *one* man's practice. If every man practising in Chicago would report similar cases the figures would be staggering.

Case 1. Child welfare. Doctor is treating child, welfare nurse calls, induces mother to take child to welfare station, finally induces mother to take child to *their* specialist, the general practitioner has lost the case and the family.

Case 2. Boy of 7 years has some webbed fingers, his family doctor advises them to wait before correcting the deformity. The school nurse sees the fingers and keeps after the child and the parents until they take the child to the surgeon she knows, who corrects the deformity and the family doctor has lost another case.

Case 3. A case of incipient tuberculosis is being treated by the family doctor in the proper manner, a T. B. nurse visits the patient regularly. She tells the patient there is no use paying the doctor for visits when the patient can go to the T. B. hospital and be treated free. The doctor did not lose this patient or family because the people stuck to him.

Case 4. Doctor makes arrangements to remove tonsils of children of a restaurant owner, it is called off. He is called some months later at night to see one of the children and on examination finds tonsils have been removed. He is told that the father took the children to a well known children's hospital on the North Side where it was done free. These are just a few instances illustrating what the family physician is up against. No doubt we could keep on citing cases like this ad *nauseum*. Our medicial societies are doing valiant work in trying to correct abuses of this kind but it is uphill work. But after hearing happenings as above, one does not wonder so much that the family practitioner is becoming a rare person.

LONGEVITY IN RELATION TO MARRIAGE

The Scottish life tables for 1921, compiled by Dr. J. C. Dunlop and summarized in a recent issue of the Transactions of the Faculty of Actuaries, show, as one might expect, a general increase in the mean length of life of both males and females as compared with the tables of ten years ago. The gain in Scotland between 1911 and 1921 was about three years for males and something over three years for females. These compare with gains of four years and three years respectively in the white population of the ten original Registration States of the United States. These facts are of interest because of the very similar conditions of longevity in the two countries.

Of particular interest are the data which Dr. Dunlop's report brings regarding the differential longevity of married and single persons in Scotland. The bachelor of 25, if he remains single, is nearly five years poorer in his expectation of life than the married man. The spinster, on the contrary, seems to have a slight advantage of three months of additional life, as compared with her married sister. This difference is so small that we might perhaps feel somewhat doubtful regarding its significance. Dunlop, however, has carried the inquiry a little further, to examine how far the observed advantage of the spinster may be attributed to her escape from the risks incidental to

pregnancy and childbirth. When allowance is made for deaths referable to these, it is found that, in Scotland, in the period under discussion, the married woman had an expectation of life of 43.4 years as compared with 42.8 years for the spinster, an advantage of something over half a year. There is a certain plausibility about these figures, which inclines one to regard the difference as probably significant, although it is rather small.

Comparison is made, also, of the expectation of life of spinsters, wives and widows. Widows are at a distinct disadvantage as regards mean length of life. The statistics here bear out what one would naturally expect in view of the economic and other stresses of widowhood.

Dr. Dunlop cautiously abstains from speculating as to the reasons for the figures observed and the seeming advantage of the married, especially among males, over the unmarried. He rests his case with the remark that the shorter life of the bachelor, as compard with his married brother, may be due at least in part to a species of natural selection, since the class of "unmarried persons" will naturally include some whose single estate is directly or indirectly referable to indifferent health or actual disease.—*Statistical Bulletin Metropolitan Life Ins. Co.*

DR. GLAUNER IN TEXAS

Dr. F. E. Glauner, a former member of this society, from Marine, who took a post-graduate course in Berlin and Vienna last summer, is now nicely located in San Antonio, Texas, with offices in the City National Bank Building. He writes:

"One thing that was exceptionally enjoyable was to escape the cold snowy weather, that I had been facing around Marine in the mud for the past several years. The weather while cool at times has been very agreeable, and I believe that we will like it fine unless the summers prove too summery for us, and which we will soon find out."

THE IMPATIENT PATIENT

By William Herschell

Us plays Doctor ever' day,
Which is when Big Bruvver say
He's th' Doctor—I'm th' one
Gotta take his meddisun!
Other kids must stand an' cry,
Bein' skeered I'm goin' to die!

Doc gits Muvver's satchel bag,
Tears a brandage from a rag,
Nen gits bottles from our shelf
For make meddisuns hisself.
Nen he stand like Doctors do,
Lookin' through their specs at you!

Doc he say: "Stick out your tongue—
You've got measles in your lung!
You've got simpsons, too, I find,
Like your eyesight's goin' blind!"
Nen he says my health's so poor
He can't take my tempachoor!

Shakes his head an' says: "Gee whisz!
Wonder who his people is?"
Nen he gives me pills he makes
From tobasco sauce an' cakes;
Says my fever won't reduce
'Less I drink some onion juice.

Doc ist skeers me till I cry
Thinkin' if I'd truly die.
He won't let me doctor him
'Cause his chances would be slim;
He'd take meddisuns, I bet,
He don't very soon forget!

—*Indianapolis News.*

(From *Indianapolis Med. Journal*, June, 1924).

THE OTHER MAN

By Doug Malloch

Perhaps he sometimes slipped a bit—
Well, so have you.
Perhaps some things he ought to quit—
Well, so should you.
Perhaps he may have faltered—why
Why, all men do, and so have I.
You must admit, unless you lie,
That so have you.
Perhaps if we would stop and think,
Both I and you,
When painting someone black as ink,
As some folks do,
Perhaps, if we would recollect,
Perfection we would not expect,
But just a man half-way correct,
Like me and you.
I'm just a man who's fairly good,
I'm just like you,
I've done some things I never should
Perhaps like you.
But, thank the Lord, I've sense to see
The rest of men with charity;
They're good enough if good as me—
Say, men like you.

International Journal of Medicine and Surgery.

PIERRE AND TEENOM

By David H. Levingston

Teenom have been felt bad in the middle a long, long time. So, the next time he pass himself to town he talk wid the doctor. When the doctor have finish his exam' wid Teenom, that Louisiana Cajun wrinkle his face up and say, "Doggone!" Then he hurry up fast home.

"What the doctor tell you to do?" Pierre ax Teenom.

"My goodness!" say Teenom, "that doctor tell me I must do way wid my appendix!"

"You have decide to do that, eh?" Pierre ax.

"*Eh, bien* Pierre!" say Teenom, almost cry, "if I don't wear no appendix no more how am I going to keep my pants up?"

Original Articles

RICKETS*

L. R. DeBuys, B. S., M. D.,
From the Department of Pediatrics, School of Medicine, Tulane University of Louisiana
NEW ORLEANS, LA.

Rickets is an old disease. It has been known since the year 2000 B. C. when an example of the disease occurred in an ape which had been confined in a Theban temple.[1]

Seranus of Ephesus[2] in the second century A. D. in giving a complete account of pediatrics in antiquity observed the frequency of crooked limbs of Roman children. Ebstein[3] regarded these as infantile rickets. Epstein[4] speaks (p. 520) of an infantile skeleton at the end of the first century A. D. (just before Seranus), excavated at Centirupe and now in the Museum at Syracuse showing indubitable signs of infantile rickets.

Glisson[5] described the disease in 1681 and gave the name Rachitis from the Greek indicating spine and because of its similarity to "Rickets" which was probably a corruption of the Norman-French "Riquets" for deformities. Because of the extent to which the disease was manifested in England, in Glisson's report the disease was called "The English Disease." Rickets has always been a condition to attract the attention of the investigative mind.

Virchow showed that the chief fault in rickets lies in the lack of proper ossification and not to an increased destruction or disintegration of bone as was previously believed. Pommer[6] was the first to clearly describe the physiology of the osseous system in rickets.

The pathology of rickets has been thoroughly established and it offers the criteria by which an unquestioned diagnosis may be made.

The diagnosis of rickets may be made by its pathological findings, its clinical manifestations, its roentgenographic evidences and its serological tests.

It would be unfortunate if the diagnosis of rickets depended solely upon its pathologic findings and indeed few cases would be so diagnosed as the mortality of rickets *per se* is practically nil. However, the study of rickets with its known pathology has been going on over so long a period and has been so sufficiently extensive as to have established its clinical picture. With the disease of an established pathology as rickets not only its clinical diagnosis but its roentgenologic and serologic diagnoses have been made possible by confirmation with its pathologic findings in experimental animal investigation.

It is not the purpose at this time to go into an academic dissertation on rickets as you are all undoubtedly familiar with the condition. There are, however, some features of the disease which have been studied which should be of interest and which it is my purpose to refer to today.

In the history of the study of rickets there have occurred periodically times when the interest in the disease has been stimulated. This has been especially so within the past decade during which time there has been more investigational work conducted than possibly in any like period in this history of the diseaee.

Several theories have been advanced for the causation of rickets, principal among which have been (a) those of infection; (b) those of diet; and (c) those of hygiene. The first of these were especially sponsored by Moussu,[7] Torane and Forte[8] and Kock,[9] the latter of whom said that he could produce rickets experimentally. However, sufficient scientific studies have been conducted to discredit any contention of the infectious character of the disease, thus leaving the two remaining etiological factors namely, diet and hygiene, as furnishing fields for study and investigation.

The names of certain investigators have been associated with these two causative factors of rickets, so that any remarks relative to the etiology of the disease must include some reference to them. Guerin[10] and Bland-Sutton[11] appear to be two of the exponents of the dietary cause of rickets.

Guerin[10] fed puppies on meat for four to five months and produced rickets in them, while puppies from the same litter were suckled and they showed no signs of the disease.

Bland-Sutton[11] in the Zoological Gardens of London produced rickets in young lions by weaning them early and feeding them on raw meat only and was able to cure them in three months by adding to their diets milk and cod liver oil.

Findlay[12] and Hansemann[13] are two exponents of the hygienic cause of rickets; the former be-

*Read before the Inter-State Post Graduate Assembly of America, Milwaukee, Wis., Oct. 27-31, 1924.

lieving that "rickets is due to confinement and lack of exercise," and the latter stating that the "cause could be written down as domestication."

Findlay[14] cites the instance of two dogs belonging to a sister and brother. The brother's dog ran about with him and the sister's dog remained confined with her. By the end of the summer the boy's dog was fine and healthy and the girl's dog showed clinical rickets with curving of the legs.

Hansemann[13] prevailed upon his Japanese students to capture and confine a young wild monkey. After confinement when curvature of the bones took place they were shown to be rachitic, according to Hansemann.

While observations of the exponents of these two etiological schools of rickets are of interest, there are other observers who have recorded similar results and some whose results do not concur with these. It is because of the varied results obtained that the etiology of rickets is still a matter of much interest.

Whatever the etiologic factors in the production of rickets, whether they be purely dietary or purely hygienic, they are closely associated in the investigational and experimental contributions here recorded.

In all investigational and experimental work the several diagnostic means are used as indices for the study. The diagnosis of rickets by its pathology is the most reliable method. But only in experimental animals is this means of diagnosis possible. By a comparison with its pathology in experimental animals the diagnosis of rickets has been made more reliable by serologic and radiologic means. The clinical evidences of the disease do not always concur with the serologic and radiologic findings which is possibly due to the fact that the evidences of rickets secured by these various methods occur at different stages of the disease. The exact order of their occurrence should require further investigation. For example, rickets has been considered as a disease which manifests itself during the second half of the first year. The origin of this belief no doubt is based upon the fact that during the second half of the first year the clinical symptoms ascribed to rickets are noted. Most of the symptoms very likely are the result of a prolonged disturbance. In an article based upon the study of 197 breast fed infants extending over the period of the first year of life it was shown by DeBuys[15] in the follow-up division of his service of the newly born that the average intensity of the clinical symptoms gradually increased towards the end of the year with the exception of craniotabes which began at four weeks, promptly increased and reached its peak at the 16th week and decreased rapidly to the 28th week after which time its intensity was insignificant. On the other hand, in another study DeBuys and von Meysenbug[16] showed that within the first 12 weeks of life the blood analysis does not show any changes indicative of rickets. From the 12th to the 20th week the blood changes are more pronounced, and after this period there is a gradual return to normal. While these findings coincide with the period of the inception of the individual symptom the intensity of the symptoms continued when the blood returned to its normal calcium and phosphate content.

Calcium and Phosphorus. Calcium and phosphorus are the two chemical elements found to be altered in rickets, so that naturally they have been a source of scientific investigation.

In their study upon the calcium and phosphorus in serum in relation to rickets Howland and Kramer[17] conclude that:

"In non-rachitic infants and young children, the concentration of calcium is from 10 to 11 mg. per 100 cc. of serum.

The concentration of inorganic phosphorus is about 5 mg. per 100 cc. of serum.

The constancy of the concentration of calcium phosphorus and bicarbonate in the serum of normal children undoubtedly determines the constancy of the inorganic composition of normal bone.

During the period of active rickets the calcium concentration may be normal or slightly reduced. The reduction does not seem to depend directly on the rickets. There are reasons for believing that in many instances the reduction is associated with a latent form of tetany.

The inorganic phosphorus of the serum is regularly reduced in active rickets, sometimes to an extreme degree.

During the process of healing, whether occurring spontaneously or as the result of the administration of cod liver oil, the phosphorus content of the serum gradually rises to a normal figure and often somewhat above this. Relapses are accompanied by a fall in the phosphorus concentration of the serum.

All the children under 2½ years of age in whom we have found an inorganic phosphorus content of the serum of 3.0 mg. or less have been suffering from active rickets."

Simultaneously Iversen and Lenstrup[18] studied the acid soluble acid insoluble and total phos-

phorus in the whole blood and plasma of normal and rachitic infants and found a low acid soluble phosphorus in children suffering from rickets compared with the normal.

Pappenheimer, McCann, Zucker, and others[19] showed that:

"Rachitic bone lesions may be produced in rats by a diet containing an excess of calcium but deficient in phosphates.

Similar lesions follow a diet deficient in calcium but containing an excess of phosphate, the endochondral lesions however are less pronounced.

A diet deficient in both calcium and phosphorus induces a typical rickets.

Inorganic salts other than calcium or phosphates seem to be without influence upon the development or prevention of rachitic lesions."

Howland, Kramer, Wang, and Fletcher[20] in a study upon the calcium and phosphorus determination in blood plasma in rickets and tetany state:

"In moderate rickets, the phosphorus or calcium or both may be moderately lowered.

In severe rickets the phosphorus is markedly reduced, even in those exclusively breast fed, while the calcium may or may not be lowered."

Shipley, Park, McCollum, Simmonds[21] in the title of their study ask the question, "Is there more than one kind of rickets?" and in their conclusions make the statement that:

"As the result of our experiments we are led to believe that there are two main kinds of rickets. One is characterized by a normal or nearly normal blood calcium and a low blood phosphorus (low phosphorus rickets); the other by a normal or nearly normal blood phosphorus but a low blood calcium (low calcium rickets)."

Hess and Mazner[22] in their investigation upon rickets in relation to inorganic phosphate and calcium in maternal and fetal blood state that:

"The inorganic phosphate of the blood of pregnant women is approximately normal. The calcium is somewhat diminished at term.

The inorganic phosphate of the blood of the mother is almost invariably lower than that of her infant at birth. This holds true, although to a less extent for the calcium.

The inorganic phosphate of the new-born is generally lower than that of the infants one month of age or older. However, even when the percentage was within the rachitic range, rickets was not evident by clinical or roentenographic examination.

No relationship was found between the percentage of inorganic phosphate in the blood of the new born and the occurrence of rickets during the first year of life."

DeBuys and von Meysenbug[16] in the study of the correlation of the clinical, radiological, serological evidences of rickets in the breast fed found:

"That the lower the product (calcium X phosphate) the more frequent were the x-ray findings positive and the greater was the degree of clinical evidences of rickets.

The positive radiographic findings, the positive clinical manifestations and the abnormal blood changes ran parallel."

Diet. The foregoing serologic studies have shown that there is a disturbance in the calcium and phosphorus in the blood in this disease. These serologic findings have been confirmed at autopsy in experimental animals. The x-ray evidence of the bone pathology gives a definite picture so that with the x-ray and serologic findings established for rickets as a basis is had for the study of the influencing factors upon rickets in the human being.

The effect of diet upon the prevention, production, and healing of rickets has offered a very extensive field for scientific study. A diet defective in its fat content has long been believed to predispose to rickets. It has been noted that the kind of fat to so influence rickets is animal fat. It has been shown that animal fat contains at least one "accessory food" or vitamin, the fat soluble A. The absence of this vitamin has been held accountable for the development of rickets. God liver oil is rich in this vitamin. It has been shown more recently that there is another vitamin in cod liver oil which is accountable for the antirachitic property of the oil. It is difficult to say how long it has been known that cod liver oil is indicated in rickets. The association of the name of the oil with the name of the disease is historical.

Von Meysenbug[23] found that there is no reduction in the inorganic phosphate of the breast milk on which infants develop rickets.

DeBuys and von Meysenbug[24] found the calcium content of breast milk to be greater in the mothers of normal infants as compared with the milk of mothers of rachitic infants. They found the calcium content to diminish as lactation progresses. It was also noted that the calcium content of the milk in the colored race was less than in the white.

"Egg yolk possesses marked antirachitic properties for animals and for infants. It has proved itself of great value in protecting infants from rickets during the season when its incidence is greatest, and with this in view can be recommended as a supplement to the dietary comparable to orange juice in the protec-

tion against infantile scurvy. It has also curative value but less than cod liver oil, and, therefore, according to Hess[26] should not be relied on for cure except when cod liver oil is not well borne.

Casparis, Shipley and Kramer[25] state that "the addition of one or two eggs a day to the diet will initiate healing, which is usually evident within three weeks after the egg feeding is begun.

"The chemical changes in the blood serum and the roentgenographic changes in the bones are similar to those which follow the administration of cod liver oil.

"The addition of 10 per cent egg yolk to a rickets producing diet will initiate healing of rickets in the rat in six days."

Butter fat has a very feeble influence in protecting animals against the development of ricket like lesions.[27]

Shipley, Kinney and McCollum[28] showed in experimental rats that ether extracts from alfalfa leaves and ether extracts from clover blossoms are antirachitic and the antirachitic vitamin thus obtained caused healing of rickets in rats beginning on the seventh day of administration and was practically complete in 33 days.

The ether extracts of alfalfa are free from calcium and contain only insignificant traces of phosphorus. Ether extracts of cabbage were either negative or doubtful in their antirachitic effect, and the ether extracts of dry spinach, brussels sprouts, cabbage, celery, tomato and sweet potato given in amount equivalent to feeding 250 gms. per kilo of ration to animals with rickets were without effect on the rachitic process in the bones.

McCollum, Simmonds, Shipley, and Park[29] in their experiment upon the effect of starvation on the healing of rickets, furnish the first anatomical proof of the beneficial effect of starvation on the animal body. They believe that:

"Rickets has certain of the characteristics of a deficiency disease because certain substances contained in cod liver oil and elsewhere corrects an anatomical condition which develops when the calcium and phosphorus in the diet are present in wrong proportions. Yet rickets has a feature entirely distinct from beri beri, scurvy, and xeropthalmia. The relation between two inorganic elements determines the extent of the animal's need for the organic factor which cod liver oil furnishes. No such relationship between a vitamin and any other food substance has been clearly demonstrated in any other condition."

They[29] have shown that in rats with rickets a period of fasting induces a cessation of the activity of the disease and initiates healing with recalcification of the proliferative cartilage of the bones.

Howland and Kramer as quoted by Cavins[30] have shown this calcification to be accompanied by changes in the inorganic salts of the blood which changes are concerned only with the calcium and inorganic phosphates. These workers have further shown that there is a close relationship between the deposition of calcium phosphate in bone and the product of the concentration of the serum calcium (in mg. per 100 c.c.) and the concentration of the inorganic phosphorus expressed in the same terms. Their conclusion is that

"when the product is below 30, rickets is to be expected, between 30 and 40 it is possible. When the product is above 40 either healing is taking place or rickets is entirely absent."

McCollum, Simmonds, Shipley and Park[27] believe that with diets which are deficient in calcium but which contain a sufficient supply of fat soluble A and have an approximately normal content of phosphorus rats develop rickets fundamentally resembling human rickets. The administration of cod liver oil when the condition is well advanced is followed by healing of the lesions with the formation of an osteoporotic bone.

An influencing factor which should not be lost sight of is the effect of the diet during the preexperimental period, the first 4 weeks of life.[31]

Howland and Park[32] aand others have shown the radiographic evidences of rickets in the bones and have demonstrated the beneficial effect of cod liver oil by radiograms following the administration of the oil. These changes can be noted at the end of the third or fourth week.

It was generally believed that the fat soluble A contained in the cod liver oil was the causative factor in the cure of rickets. The experiments of Hess, McCann and Pappenheimer[33] in this connection are enlightening:

"Young rats receiving a diet complete except for a lack of the fat soluble A vitamin invariably failed to grow and generally developed keratitis. The keratitis developed less frequently when the ration included orange juice. If this diet is continued for a period of months the animals died either of inanition or more often of some intercurrent infection. The skeletons of such rats show no gross changes whatsoever. Microscopic examination of the bones of 22 rats on a ration of this character presented definite signs of a lack of active osteogenesis but in no instance lesions resembling rickets. In view of these results and their conformity with our previous experience in regard to infantile rickets we are of the opinion that this vitamin

cannot be regarded as the antirachitic vitamin and that if the diet is otherwise adequate its deficiency does not bring about rickets."

McCollum, Simmonds, Becker[34] state:

"Although there is no longer any room to doubt the efficacy of cod liver oil in curing rickets the nature of the active principles in the oil is still unknown. It has been stated that the fat soluble A is responsible for the beneficial effect from its administration in this disease. We have, however, published certain evidence which lead us to believe that the protection against rickets which cod liver oil affords is not due to fat soluble A.

Hopkins has shown that this vitamin is readily destroyed by oxidation. Following his lead McCollum and his coworkers[34] "oxidized cod liver oil for from 12 to 20 hours at 100 degrees C by blowing air through it. Oil which was treated in this way did not cure xeropthalmia, even though its administration was begun at the onset of the disease when edema of the eyelids was first noticeable. On the other hand, it was just as effective in curing rickets in rats as the untreated oil. The bones of rachitic animals which were given daily a curative dose of oxidized oil to the amount of 2 per cent of the weight of the ration (average daily consumption of cod liver oil about 70 mgs.) for 11 days showed quite as advanced evidences of healing as those shown by animals which had received the same amount of unoxidized oil for the same length of time.

The antirachitic effect of cod liver oil is not due, therefore, to its content of fat soluble A but to some other factor which the oil contains.

The existence of this substance which exerts its effects in so remarkable a manner on the growing bones is now as firmly established as is the instance of any of the three hitherto recognized vitamins. From its mode of action and the very small amounts of it which are required to exert its directive influence on metabolism it must we believe be classed with this group of essential nutritive principles."

They carried on the investigation further[35] and concluded with the statement:

"The evidence set forth in this paper demonstrates that the power of certain fats to initiate the healing of rickets depends on the presence in them of a substance which is distinct from fat soluble A. These experiments clearly demonstrate the existence of a fourth vitamin whose specific property as far as we can tell at present is to regulate the metabolism of the bones."

Light. Hess and Unger[36] have shown that rickets is encountered occasionally when every kind of food is given without exception: On a dietary containing a large quota of milk, therefore rich in fat; on a diet low in fat and the fat soluble vitamin; on raw or pasteurized milk; on a diet of fluid milk, dried milk, condensed milk and human milk. He has found it to occur in one-half of the breast fed infants of the poor, while DeBuys[16] has noted the disease to occur to an appalling degree in those infants exclusively breast fed. It would seem that since the disease occurs with such frequency on a diet supposed to be ideal that either one of the two reasons or both must be given, namely, that breast milk is deficient in the antirachitic factor or factors containd in food or that something additional is necessary to exert a favorable protective influence.

Rickets is notably frequent in parts of the world where the amount of sunlight is relatively little as compared with other parts where the amount of sunlight is plentiful. Indeed, it was this observation that led Hutchison[37] to make his observation in India, selecting India because of its excessive sunshine as compared with London's. To quote:

"In consequence of the purdah system practiced by the wealthy Hindus and Mohammedans the children of the rich were much confined in airless and sunless rooms not only during infancy but also in the case of girls about puberty when they went to reside in their future husband's house. The poor on the other hand lived in tents and huts and led an open air life. The various articles entering into the diets of the two classes were the same, though they were quantitatively differently distributed. Hutchison found early rickets during infancy and late rickets in the young girl wives prevalent among the rich and very scarce among the poor."

His diagnoses of rickets were substantiated by his x-ray findings. It is interesting to record that Hutchison[37] noted great improvement, in fact, rapid recovery in many cases by simply putting the patients in the sun and fresh air. This was noted without any change in the diet and without the administration of drugs.

Huldschinsky[38] (quoted by Meyer[39] in 1920) was the first to institute systematic attempts at the treatment of rickets with artificial ultra violet light (the mercury vapor lamp according to the Hanau system) and the summary of his results with ultra violet irradiations are as follows:

"The therapeutic effect of quartz light irradiation is invariably apparent in all forms of rickets.

Recovery results more promptly than with any of the methods employed heretofore.

The effects of irradiation are lasting and the regenerative process is active for at least two months after interruption of treatment.

The duration of treatment embraces (a) from 2 to 4 weeks in infants, (b) from 1 to 2 months in children aged one year, (c) from 2 to 6 months in chil-

dren aged 2 to 4 years, (d) up to 9 months in older children. He demonstrates roentgenographically that calcification of the bone parallels the clinical improvement."

Kramer, Caspiris, and Howland[40] showed the effect of ultra violet radiation upon the calcium and inorganic phosphorus concentration of serum in rickets. To quote:

"Five children showing clinical evidences of rickets confirmed by roentgenographic examination of the bones, were treated by systematic exposures to the rays from the mercury vapor quartz lamp. This was followed in every instance by healing of the rachitic process of the bones. The inorganic phosphorus concentration of the serum of these children was low (from 2.7 to 3.2 mg.) before the treatment was begun and gradually increased to a maximum of 6 mg. with the appearance of calcium deposition in the bones. So far as could be judged by x-ray, healing of the bones following radiation occurred at about the same time as it does after the administration of cod liver oil. The changes in the phosphorus concentration of the serum were identical with those observed after cod liver oil treatment. The pigmented skin of the negro child did not interfere with the action of the light rays. The colored children required no more intensive treatment to bring about healing than did the white children."

Hess and Unger[43] in their interpretation of the seasonal variation of rickets state:

"Young rats on a diet low in phosphorus can be protected from rickets by irradiations with sunlight for about 15 minutes daily. In the winter months, however, this degree of light was found insufficient. The effective rays of the sun, in the intensities studied, did not penetrate window glass. They manifested some protective value after reflection from a smooth white surface.

Irradiation of a few minutes with the rays of the mercury vapor lamp suffices to protect rats against rickets. This is true likewise of the rays from the carbon arc lamp. A standard protective dose of radiation can be formulated for rats on a standard diet.

Light is able to prevent the occurrence of rickets in rats fed a rickets producing diet characterized either by a low phosphorus and high calcium content, or a high phosphorus and low calcium content.

Moderate variations in temperature do not alter the effective action of light rays. Pigmentation of the skin markedly lessens their effect, as demonstrated by the failure of a standard dose to protect black rats."

Schultzer and Sonne[42] present a preliminary report on their success in warding off rickets in rats by exposing them to ultraviolet ray:

"All the rats developed rickets on the McCollum scurvy diet 3,143. The rickets was manifested in three weeks, and was pronounced in four when the rats had been kept in the dark, but there were not signs of rickets in the rats that had been exposed daily for fifteen minutes to the mercury vapor lamp. The phosphorus content of the serum was normal. Exposures limited to 5 minutes protected to some extent, but not completely. They noted further that the protection afforded by the light was less effectual in black than in lighter colored rats. The effective ultraviolet rays seemed to be those with wave lengths between 400 and 280 millimicrons. Even exposure for one minute daily had some influence.

Sunlight and carbon arc light have a decided action, but the mercury vapor lamp is more potent in rickets."

Hess and Unger[41] in another study of the seasonal variation of rickets further show the beneficial effect of light. Their conclusions are:

"Milk from pasture fed cows (summer milk) failed to prevent the development or to decrease the incidence of rickets during the winter. On the other hand treatment with ultraviolet rays or with sunlight brought about calcification of the bones during the winter as demonstrated by means of the roentgen ray. These contrasting results lead to the conclusion that hygienic factors, especially sunlight, and not dietetic factors, play the dominant role in the marked seasonal variation of the disorder."

Powers, Park, Shipley, McCollum and Simmonds[44] in their experiment to determine the preventive effect of sunlight conclude:

"The beneficial effects of the sun's rays were not limited to the skeleton since the condition of the animals underwent a general improvement under the influence of the treatment with sunlight. The effect of the sunlight on the skeleton was a manifestation of its favorable effect only on a single tissue.

The exposure to the sun rays however did not entirely compensate for the defects in the diet. The animals remained undersized, the bones though completely calcified remained thin. Though the sunlight did not alter the defects in the diet it permitted the animals to thrive to a limited extent in the presence of them.

It is necessary to conclude, therefore, that the sunlight in some way raises the efficiency of the body cells. It enables the organism to put into operation regulatory mechanism which otherwise would have been inoperative or ineffectual.

The effects of sunlight and of cod liver oil on the growth and calcification of the skeleton and on the animal as a whole seem to be similar if not identical."

These same observers[45] conducted experiments to determine the protective effect of the mercury vapor quartz lamp and were able to prevent the development of rickets in rats. They concluded as follows:

"The beneficial effects of the radiations from the mercury vapor quartz lamp were not limited to the skeleton since the condition of the rayed animals underwent a general improvement.

The effect of the radiations of the mercury vapor quartz lamp on the growth and calcification of the skeleton of the rat and on the animal as a whole seemed to be similar to if not identical with those brought about by direct sunlight and by cod liver oil."

Shipley, Park and McCollum[31] were able to produce a pathological condition corresponding in all fundamental respects to rickets in human beings in two ways when rats were deprived of certain active light rays: 1. By diminishing the phosphorus and supplying the calcium in optimal quantity or in excess, or 2, by reducing the calcium and maintaining the phosphorus at a concentration somewhere near the optimum.

Hess and Unger[46] were able to obtain results by direct action of the sun's rays similar to those from the ultra violet ray.

"In their experience there was marked improvement in the rickets as evidenced by the calcification of the epiphyses noted by x-ray. The alteration resembled that which follows the administration of cod liver oil. The children's general condition was also benefited."

The beneficial influence of sunlight in the prevention of rickets was shown in rats fed upon a diet adequate in calcium, but low in phosphorus by Hess, Unger and Pappenheimer.[47] To quote:

"Rachitic lesions which develop regularly in rats upon a diet adequate in calcium but low in phosphorus may be prevented by short exposures to direct sunlight. This protection is equivalent to the addition of at least 75 mg. of phosphorus to the diet in the form of basic potassium phosphate."

Gutman and Hess[48] showed the curative effect of sunlight which was accompanied by an increase of inorganic phosphate in the blood. They concluded:

"It is evident that sunlight not only brings about a clinical cure of the characteristic lesions, but also brings about an increase in the inorganic phosphate of the blood similar to that noted when the cure is accompanied by means of the specific cod liver oil. This observation is of interest both as additional testimony of the curative value of sunlight in this disorder, and as evidence that the curative process occasioned by those divergent therapeutic agents will probably be found to be fundamentally the same. These results establish a chemical basis for the use of heliotherapy in rickets. Furthermore, they furnish the first definite evidence of metabolic changes in the animal body brought about by the solar rays."

The experience of Hess and Unger[49] with the carbon arc light in the prevention and cure of rickets is interesting, as they add another therapeutic agent of value. They state:

"In this experiment we used the white flame carbon arc lamp because its rays more closely approach the sun's spectrum, and they were rich in luminous rays. The mercury vapor quartz lamp emits rays rich in ultra violet. Much of the ultra violet rays are of wave lengths considerably shorter than those of sunlight. The carbon arc light used was similar to those employed in taking motion pictures. The children did not experience any tanning. Hess believes that pigmentation is a non-essential factor in heliotherapy in rickets and argues against Rollier's theory that the beneficial action of sunlight is due to and in accordance with the degree of pigmentation which is produced. There were no superficial burns in this experiment. Hess concludes that the carbon arc light has been found in the laboratory as well as in the clinic to be a very effective therapeutic agent in preventing and curing rickets. It has the advantage of being comparatively inexpensive, its rays are non-irritating to the skin so that it can be used for hours with perfect safety."

The experiments of Eckstein[49] made on 43 rats proved that

"those animals which had been treated by irradiation from an electric arc light failed to develop rachitis in spite of preliminary deprivation of vitamin A, phosphorus and fat content of their food. The non-irradiated control animals developed rachitic bone changes."

Finally, with regard to the various ray experiments, Hess, Unger and Steiner[50] have shown that the roentgen rays neither prevent nor produce rickets in experimental animals.

Exercise. With regard to exercise in rickets no experimental data is available to warrant any conclusions. Most clinicians advise against too early exercise in rickets, i. e., sitting, standing and walking. In fact, this advice was given by Seranus[2] in the second century. On the other hand, Findlay[14] advocates the use of electricity and massage, as they tend to cause the rachitics to walk earlier; and Marfan[51] advises that the child should not be prevented from standing for a short time and walking a few steps at the beginning of progress toward recovery. It would seem to be more judicious, however, in view of observations made upon the colored race, to advise against this plan. These colored children are thrown upon their own resources earlier and consequently sit, stand, and walk at a younger age than do the white children. These colored children also have more rickets and the deformities of rickets in them are decidedly more marked. It would seem, therefore, that until the rachitic process is healed exercise, either active or passive, should be advised against. Further in cases of deformity, attempts should be made to correct them while treatment is in

progress, so that the deformities may be overcome as the ossification of the bones, the strengthening of the musculature, and general improvement of the individual progresses.

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TRAUMATIC RUPTURE OF THORACIC AORTA WITH REVIEW OF FIFTY-FIVE ABDOMINAL INJURIES*

LeRoy Philip Kuhn, M. D.

CHICAGO

I wish to report the history and autopsy findings of a man, aged 49, married, two children under 16. While working at a revolving rip-saw (2,800 revolutions per minute) a block of wood was thrown back against his sternum. The blow did not produce laceration of skin, and little, if any discoloration. Upon first examination made in my office Aug. 15, 1924, I found temperature 98.2, pulse 85, respirations 22, blood pressure 99 systolic—60 diastolic. Excursion of lungs normal. A few coarse rales in right upper lobe. Left lung clear. No areas of dullness in either lung. Expansion 35¼, contraction 33. Apex of heart in left fifth interspace mammillary line. Right border does not extend beyond the right border of the sternum. Tones clear. No murmurs. No intermissions or extra systoles. Regular rhythm. Pulse soft. Urine, dark amber color; specific gravity 1030; reaction acid; no albumin; no sugar. X-ray of chest did not reveal fracture.

Aside from the tenderness over the sternum

*Address before Chicago Medical Society, March, 1925.

and slight embarrassment of respiratory movements, the patient did not complain. There was no cough. I advised him of the tremendous force the blow carried, and directed him to go to the hospital for a few days' observation. This he refused to do, stating he expected to resume work in a few days. He returned to my office Aug. 17, stating he had a great deal of pain in his chest, directly under the sternum. His color was not so good. Temperature 99; pulse 90; respirations 24. Excursion of lungs was the same as at first examination. He was given a mild laxative, and directed to remain quiet, in bed, with ice bag applied to the sternum. He came to my office again on Aug. 19 feeling better. No further chest symptoms. Stated he thought he was well enough to resume work. I directed him to remain quiet and return on Aug. 22. Another examination made of his chest on Aug. 23 did not reveal any abnormal changes. In view of the fact that he had regained his strength, I stated he might resume light work on the following Monday, Aug. 25, 1924. Soon after he arose on that day, he stated to his family that he did not feel so well. In a few minutes he was dead—before medical aid could reach him.

Post Mortem Examination:

On inspection of body we found an extensive area of no excessive ecchymosis over the sternal region extending from left mammillary line to right mammillary line and down to end of sternum.

On opening the skin we found some extravasation of blood between 2nd and 3rd, and 3rd and 4th ribs on right side, and a small clot near the median line. On opening the thorax we found considerable extravasation in anterior mediastinum. The lungs were about normal. On opening the pericardium we found it completely filled with clotted blood (about 500 cc.). Tracing this to its source we found a rupture of the lining of the aorta just as it springs from the left ventricle of the heart, at which point the blood had finally worked its way through.

In my opinion death was due to hemorrhage into the pericardium following accidental injury.

Signed "J. H. Goltra."

From a careful search of the literature with respect to traumatic dissecting rupture of the thoracic aorta, I have found 75 cases reported since 1895. Twenty-six of these reports show traumatic rupture with hemorrhage into the pericardium, as was noted in the post mortem findings of our patient. Two cases were reported of incomplete thoracic rupture of aorta due to trauma.

P. Rowland Kemp[1] reports a traumatic rupture of thoracic aorta in a male aged 46, admitted to casualty department dead. A history was given of having been struck on the head and chest by a portion of a stone, which had been separated from a flywheel, while revolving at full speed, in a motor works. He had a large abrasion over the sternum, deep bruises over right malar bone, and an incised wound of the chin. Post mortem examination revealed an extravasation of blood into the subcutaneous tissues and under the pectoralis major in the area of the abrasion. The sternum was obliquely fractured from above downward and backward into the line of 3rd and 4th costal cartilages. The lungs were deeply congested. The pericardium was greatly distended with blood which had escaped from a transverse tear in the aorta just beyond the line of the aortic valve. The exuded serum was under considerable pressure. Skull was entirely negative.

Traumatic rupture of healthy thoracic aorta without external signs of the cause of death is reported by G. G. Copeland.[2] A laborer, 40 years old, was struck by a large mass of falling earth which gave him a glancing blow on the back, knocking him down. A few seconds later he was picked up dead, and was seen by a medical man who could find no external evidence of the cause of death. Post mortem findings were as follows: 310 cc. free blood in peritoneal cavity; left pleural cavity contained 380 cc. blood; descending aorta ruptured straight across—no evidence of disease. What caused the rupture he was unable to say, though the idea of a force acting like a contrecoup seemed tenable.

In connection with this report I wish to review 55 "kickback" accidents, due to a piece of wood thrown back from a revolving rip-saw or planer producing trauma to the abdomen. These cases have come under my personal attention for treatment during the past twelve years.

The average revolving rip-saw is run at about 2,800 revolutions a minute, while the planer is faster—approximately 3,400 revolutions a minute. The force of the blow is sufficient to knock the workman back from four to seven feet. Profound shock, nausea, weak pulse, cold perspiration follow. After a short while the patient may resume work for a time.

If the employer is prudent, having had experience with such accidents, he will insist upon the injured workman going to the hospital at once. I have known these men to stop work, go home and await symptoms. Some of them go through the night, others call a doctor earlier. Some of these patients have finished a day's work, only to find themselves in a state of collapse by evening. Others apparently have little pain. All of them should be regarded as serious injuries until such time as it is known definitely that there is little if any damage to internal organs. It is far better for the physician in charge of one of these accidents to understand that he is dealing with a surgical case from the beginning.

Sternberg of Vienna states that woodworkers working with revolving saws (2,000 to 3,000 revolutions per minute) are very prone to injuries caused by the wood being thrown back by the saw. The following statistics were gathered from Austrian furniture factories. Of 519 accidents caused by planing machines 221 were due to "Zurerckschlagen" or "kickback." The remaining injuries were of the fingers, etc. Of 135 accidents caused by trimming machines 85 were due to the "throwback." Of 514 caused by circular saws 204 were due to the same mechanism.

Monro[3] states that a hollow viscus filled with food is more apt to rupture than one which is empty. The majority of ruptures occur in the upper and lower portions of the small intestine, i. e., the less movable portions. Perforations may be single or multiple.

KICKBACK ACCIDENTS AND TRAUMA TO ABDOMEN

Total number of author's patients	55
Number operated on	18
Number operated upon the day of injury	13
Of those operated upon the day of injury (recovered)	12
Or a mortality of	7.7
Number operated upon 2nd, 4th and 7th day after injury	5
Of those operated upon 2nd, 4th and 7th day after injury (number recovered)	1
Or a mortality of	80%
Total number of patients not operated on	37
Ordered to report because of nature and type of injury to abdomen	23
Persistently refusing to submit to early operation	13
Five of the thirteen died—or a mortality of	39%

One patient died on way to hospital.

The one patient who had been operated on the day of injury had a ruptured pancreas. Autopsy findings of fat necrosis.

Five of the thirteen who persistently refused exploratory operation—autopsy findings were:

1. Jejunum traumatized so that two openings size of pencil were found in the upper portion.
2. Large irregular tear middle portion of ileum.
3. Trauma to the ileum so that adynamic ileus produced death.
4. Ruptured urinary bladder.
5. Opening in the lower portion of ileum large enough to admit little finger.

Massie[4] reviews thirty-four cases of intestinal rupture without penetration of abdominal wall. He found stomach, duodenum and colon free from injury in this series of cases, while the jejunum and ileum suffered the majority of the lesions. Most of the lesions were partial ruptures, not producing a complete division of the bowel.

Of my 18 cases operated on I found: nine with lacerations or bursting holes in the ileum; three with holes in the jejunum; one rupture of the urinary bladder; one rupture of pancreas; one adynamic ileus, or paresis of the bowel; two lacerations of capsule of the liver; one hemorrhage of the mesentery with trauma to the ileum.

External evidence of trauma and history of blow to abdomen are not safe guides. Recently I had a patient with a good deal of discoloration of the skin and marked rigidity. Pulse 88. Considerable evidence of shock. Advised immediate exploration of abdomen. Patient refused and left the hospital against orders. I followed his progress for a few days until he resumed work. I understand he has worked ever since with little, if any, disturbance resulting from the blow. One week before this accident a patient came under my care who sustained a kickback with little, if any, evidence of trauma, no rigidity of abdominal muscles and practically no pain. I waited thirty-six hours before advising operation. When I opened the abdomen I found a small hole in the lower portion of the ileum with localized peritonitis. The opening was repaired and drainage established. Patient went along nicely for a few days when he died of general peritonitis.

John T. Bottomley[5] writing on injuries to jejunum and ileum states that unfortunately the early symptoms of a severe injury may differ in no essential way from those of an unimportant injury, and we may thus be lulled into a dangerous feeling of security. He analyzed the cause, early symptoms and signs of twenty cases of

proven severe intestinal injury caused by blunt force and of an equal number of cases of undoubted simple abdominal contusions from nearly identical causes. Pain, shock, tenderness, muscular spasm, dullness, vomiting, distention and external signs of violence—the symptoms common to both classes—were carefully studied and several interesting deductions made. In the first place, apparently identical causes may produce a comparatively insignificant or a very severe injury. It is equally difficult to estimate the amount of force exerted by the acting agent and the degree of resistance or lack of resistance offered by the subject. There is no symptom or combination of symptoms that distinguishes the serious from the unimportant injury. There seems to be no certain pre-operative means of differentiating between a simple abdominal contusion and one complicated by severe intestinal injury.

I have found the best guide to what is going on within the abdomen is the pulse. It should be carefuly taken a full minute every half hour. A pulse increased to 90 or 95 within a few hours after an accident means trouble, especially if it remains around 95. This increase alone of the pulse is sufficient to advise exploratory operation. On the other hand, if the pulse is 48 or 55, one is justified in advising immediate exploration of the abdomen. Two of my patients operated on had a pulse around 50—one a rent in the capsule of the liver with considerable shock, the other intestinal paresis of three feet of the lower portion of the ileum.

A full intestine is much more liable to rupture than when the bowel is nearly empty. Ascertain, if possible, when the patient had his last meal. If the accident occurs within 15 minutes or an half hour after a meal, the intestine is more liable to burst. When the patient is caught suddenly by the blow and the muscles are not firmly contracted, there is little resistance, with practically no defense between the viscera and the force.

Muscular rigidity is regarded by some as pathogenomonic. W. J. Mayo believes this is sufficient to warrant exploration. I recall one patient who was so rigid over entire abdomen that I advised operation at once. He wished to know if I could assure him of recovery if operation was done at once. I stated his chance was 99 per cent good. This did not satisfy, he wanted 100 per cent sure, or no operation. This patient left the hospital that night and resumed work two days later. He had rigidity with a painful abdomen for ten days following. I am inclined to the belief that a slightly distended abdomen is a better sign than so much rigidity of the muscles.

Hemorrhage often adds to the confusion. Usually if the hemorrhage is at all marked, the appearance of the patient together with the pulse will spell alarm and cause surgical interference.

It is well to have these patients void urine so that bladder injury can be ruled out of probable trauma. From my total of 55 cases only two sustained bladder injuries; one—a complete irregular tear 2 ccm. long on the anterior surface; the other was traumatized so that it was questionable at the time of operation if the bladder wall would hold. By the use of a retention catheter—not allowing the bladder to become distended for five days—the patient recovered with only cystitis as a complication.

In attempting to make a differential diagnosis one can only speculate. As a matter of fact it is impossible to make a correct diagnosis without exploratory laparotomy. From the 18 patients operated on I might say five or six of them were explored with a timidity that it might not have been necessary to operate.

A short time ago I opened an abdomen wherein the symptoms were mild, although the patient gave a clear history of a forceful blow to the right of the umbilicus. I had difficulty convincing him operation was necessary. In fact, the patient refused. It was necessary for me to convince the family physician before the patient would submit. I found a rent in the middle portion of the ileum large enough to admit the tip of the little finger. This patient made an uneventful recovery.

The fact that a few unnecessary operations may be done is no argument against the procedure. Referring to the chart of 55 cases reported and finding five deaths out of thirteen who persistently refused operation and four deaths of five operated on late, as against one death in 13 when operation was performed early indicates the necessity of early exploratory operation in most all of these cases. These lives would not have been sacrificed to their needy families if they had submitted to operation.

Prognosis. From the experience I have had with 55 patients of different types of trauma, I have concluded early exploratory operation is advisable in 90 per cent of all cases. Watchful waiting with a clear history of "kickback" or deep trauma to soft parts of abdomen means death.

Lund, Nichols and Bottomley[6] report six cases in which operation was done with four recoveries, the deaths occurring in cases in which operation was done after many hours had elapsed.

Siegel[7] has collected 376 cases of rupture of intestine which have been submitted to operation. The mortality was 51.6 per cent. Those cases operated upon in the first four hours showed a mortality of 15.2 per cent; within five to eight hours, 44.4 per cent; within nine to twelve hours, 63.6 per cent; after twelve hours, 70 per cent. One might state the prognosis is favorable if operation can be done during first five to seven hours following injury. Operation after twelve hours, if the trauma has been severe, gives the patient about a 30 per cent chance of recovery.

Treatment. There is no medical treatment for these patients, except application of ice-bag until exploratory operation can be done. Morphin should not be given, because, if the patient is hesitating about operation, it will sometimes give the desired relief and the patient will decide to wait until more serious symptoms develop before consenting to operation. Then it may be too late.

It usually requires two or three hours to get the patient into the hospital for the surgeon to examine and advise. Then it further requires several hours more for the religious advisor and the operating room preparation, so that five to seven hours time elapses before surgical interference occurs. Every hour wasted after five means a more serious time for the patient.

Once the abdomen is opened, it has been my experience to do a simple suture of silk or linen to the rent in the intestine and close the abdomen without drainage, in as short a time as is possible. What is to be done by the surgeon must be decided upon in each individual case. I have not had to do resection in any of these cases reported. If escape of fecal contents is profuse, thorough flushing of the peritoneal cavity might be advisable and tube drainage may be necessary.

Some of these patients are restless following operation, especially if gas distention occurs. Morphin is indicated to lessen peristalsis so that the traumatized intestine has opportunity to heal. If the patient has nothing but warm water by mouth and glucose solution or warm water (drop method) per rectum for a few days, little disturbance follows.

One of my patients would not resume work when he had recovered. He had suffered a rent in the lower portion of the ileum. I repaired it a few hours following injury. He made an uneventful recovery. A physician later made a diagnosis of traumatic neurosis following shock from accident and operation. The patient made the rounds until he was advised he had a duodenal ulcer. With this diagnosis the Industrial Commission recommended further surgical attention. The abdomen was explored. We did not find duodenal ulcer nor any adhesions. The stomach had a normal appearance. The repair of the rent in the lower portion of the ileum was in good condition. Lumen of intestine had not been changed by the repair. There was nothing abnormal to be found within the abdomen. Patient recovered and advised of our findings. The exploration had a splendid psychic effect. After eight weeks he resumed work and has worked steadily ever since. If these patients have an early adjustment of whatever compensation is due them, I have found it has a tendency to promote recovery with less subjective symptoms.

CONCLUSIONS

1. Trauma to the chest or abdomen requires careful attention from the time of accident.

2. These patients should be in the hospital under the care of a surgeon. They are not medical cases.

3. Exploration of abdomen is essential for correct diagnosis in more than 90 per cent.

4. Operation five or seven hours following trauma is a safe procedure. After 10 or 12 hours it is unfavorable—especially if pulse is above 90.

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DISCUSSION

Dr. William M. Harsha: I have been very much interested in Dr. Kuhn's paper and in his work, of which I have seen a good deal in the past seven years, through his courtesy. The President said we were going down to the abdomen after we had the papers on the nose, throat and chest, but after listening to Dr. Kuhn it seems to me he has gone from the upper part of the chest clear down to the bladder.

In this industrial work more versatility is required than in almost any other specialty. The industrial surgeons have done great credit to themselves and they deserve to have the excellent association which is devoted to their work. Dr. Kuhn and Doctors Mock, Forrester, Magnuson, Fisk, McNeally and others have done credit to the profession by the work they have done. Most of us surgeons can refer something in a special line to the specialists, because there are many surgical specialists now. Brain surgery is now considered a specialty, surgery of the neck more or less so, and there is an Association of Thoracic Surgeons. Then we have the gynecologists and abdominal surgeons, the genitourinary specialists, and the orthopedic surgeons, who take care of the bones from top to toe, but the industrial surgeon takes care of all of these things. He has to do brain surgery, abdominal surgery, thoracic surgery, orthopedic work and all that sort of thing. Not only that, but he must also be an internist, for if he has an amputation to perform he has to see if the patient has any condition which will interfere with operation and healing; and I think there is no branch of surgery that requires more versatility and more general knowledge than this particular branch. I wish to congratulate the Doctor on the way he has handled his cases. Such work requires great self-reliance.

I wish to ask him in passing how many of the cases of rupture of the thoracic aorta had fracture of bones of the chest. His case, as I understand it, did not have fracture of the bony part of the chest.

The mechanism of these internal injuries, as he said, is a matter of speculation. Some are done by pressure of gases or fluid, some intestinal cases by pressure where the intestine is pushed forcibly against the spine, and some are done in various ways. I have seen some of Dr. Kuhn's cases, through his courtesy. One of the cases of rupture of the bladder I saw. That patient had the usual symptoms of severe pain, some shock, a frequent desire to urinate but was unable to void. On the passage of a catheter nothing was withdrawn but a small amount of bloody urine. Both of these cases recovered, as he reported. Rupture of the bladder is not a common injury from trauma not associated with fracture of the pelvis. As Dr. Kuhn said, when the intestines are distended there is more danger of rupture and the same is true of the bladder for reasons that are obvious. The case I saw had no crushing of the pelvic bones and was apparently a pressure injury on a full bladder. One case which I saw with him was that of a man who came here from an outside city, who had a history of a kick-back some months before. He had lost a great deal of weight and was unable to eat. He had roentgenograms made by three different roentgenologists, all of whom made a diagnosis of cancer of the stomach. The symptoms were too marked and there were too many symptoms, it seemed to me, to fit with simple cancer of the stomach. The antrum and pyloric end of the stomach, as shown by the roentgenogram, was contracted for three inches. He could hardly walk, was bent forward, and had symptoms which the ordinary cancer of the stomach does not present. We advised exploration and found that as the result of the trauma suffered several months before he had perigastric adhesions which compressed the antrum and lower part of the stomach. He also had a thickening of the wall of the stomach, particularly the posterior wall. After loosening these adhesions and putting the stomach in a more normal position the man made a good recovery. The operation was in October, two years ago. He went to work in December and has been at work ever since and seems to be completely well. From the history I could not be sure that he did not have cancer but the postoperative history shows that the trouble was all due to traumatism.

In regard to Dr. Kuhn's conclusion to operate on these cases, I think he is right. This is not entirely new. American surgeons fifteen or more years ago regarded all these accidents "as serious unless proven innocent." The English surgeons took a different view, advised an expectant plan, and the results were very different in the mortality. The mortality of exploratory operation is only a fraction of 1 per cent. and 90 per cent. of these severe abdominal contusions should have early operations. All the figures I have seen show this.

Regarding the time of operation, those of us who have operated many times for perforated duodenal ulcer know that the first day is the time of safety, and the earlier in the first day the better for the patient. The same is true of traumatic ruptures.

Another feature Dr. Kuhn mentioned is the malingering kind of case. I think it is up to the industrial surgeons to discover some kind of serum that will detect a malingerer! At present the only way we have is to employ a squad of detectives. That is the hardest kind of case to me. We know the best of men are sometimes deceived by these malingerers. Doctors are trying all the time to get at the truth

about these cases, but occasionally a man who is hurt, and employs a certain type of lawyer, attempts to show up everything but the truth and it seems to me a very difficult thing to determine. I have noticed one thing, however, and that is that a malingerer who contends that he is not going to get well until a certain time, or until a certain operation is done, when offered operation, knowing that he does not need it, will sometimes show his hand. Fifteen years ago a surgeon reported 250 cases of railway injuries before one of our societies, in which there were both injuries and neuroses. The records of those cases were kept, and it was surprising how rapidly some of them recovered after settlement of their claims.

Dr. Daniel A. Orth: Dr. Kuhn's vast industrial experience and his keen observation have enabled him to collect an exceptionally large number of cases of non-penetrating abdominal injuries which he has so aptly designated as "kick-back" injuries.

In contrast to Dr. Kuhn's series of cases in which the small intestine was by far the most frequently affected viscus, Koerte found that the solid viscera, i. e., liver, spleen, kidneys and pancreas, are more apt to be involved in these injuries.

Monro states that a hollow viscus is more likely to rupture when filled with food than when empty. Dr. Kuhn made the same observation in his cases of intestinal perforation, fifteen or twenty minutes after a meal. This is probably not due to the presence of the recently ingested food within the intestine, but may be due to the confining of the gas by the distended stomach at one end and the force of the blow at the other.

Dr. Kuhn also mentioned, as an early diagnostic sign, the abdominal distention. Free gas in the peritoneal cavity is a very important sign. When rupture occurs the gas rises to the highest point. Tympany is observed in the epigastric region and lateral liver dullness is present with the patient in the dorsal position. If free gas is present the lateral liver dullness disappears when the patient is turned on the left side.

Dr. Kuhn has observed in two cases a pulse of 50. A pulse rate of 50 or below, in cases of injury to the abdomen, is pathognomonic of ruptured liver. This bradycardia is due to an absorption of the bile salts from the injured liver surface. This is frequently observed in cases of obstructing jaundice.

I am sure we all agree with Dr. Kuhn that these cases are to be operated on early—operated on without waiting for positive signs. If we wait for positive signs, which indicate the presence of a peritonitis, the most favorable time for operation will have passed. Later, as in the case in which Dr. Kuhn operated thirty-six hours after injury, following which the patient died of generaliized peritonitis, I think the treatment should be conservative, unless the condition originally is one of generalized peritonitis. This is exemplified in Dr. Kuhn's case, which he operated on the seventh day with a resulting cure.

I have had an opportunity to observe a number of Dr. Kuhn's cases and admire the fearless and capable way in which he handles them.

Dr. Nelson M. Percy: It has occurred to me tonight in connection with these abdominal injuries that possibly the further development of the use of the abdominoscope may prove a valuable aid in the diagnosis of these conditions. I believe the use of the abdominoscope is more than a passing fancy. Recently Dr. Nadeau has been using it in our clinic and within the last few weeks he has demonstrated two cases of carcinoma as being inoperable by demonstrating multiple metastases. Another case which came in last week diagnosed as diffuse abdominal carcinomatosis was, by means of the abdominoscope, proved to be tubular peritonitis. Possibly in some of these cases of abdominal injury in which the patient refuses to submit to an exploratory operation he will submit to the use of the abdominoscope. I do not believe one could always locate a small rip in the intestine by this means, but there will be at least a small amount of blood present in the region of a ruptured viscus and I think even a small amount can be demonstrated with the abdominoscope, indicating that there is an intra-abdominal injury present. These patients do not suffer any more discomfort, and frequently not as much, as follows the use of the cystoscope.

From the charts the Doctor presented it is evident the success of the treatment depends upon the early diagnosis and prompt action, and I think it is important to make an early and as positive diagnosis as possible.

As to the treatment in these cases of ruptured viscus, I believe simple suture should be carried out whenever possible. This can usually be done in this type of injury because the intestines are rarely injured on their mesenteric side. In the cases which can be operated on within twelve hours after the injury a simple closure of the intestine and closure of the abdomen is all that is necessary. In the cases that are operated on after twelve hours I believe that besides closing the intestine a catheter drainage should be placed in the intestine proximal to the point of injury. After twelve hours there is apt to be at least a localized peritonitis. With this there will be abdominal distension, and with this distension there will be danger of leakage at the suture line. By placing the catheter drainage we allow the escape of gas and there will be very little abdominal distension. I am sure some of the cases operated on after twelve hours can be saved by the catheter drainage.

Dr. Kuhn spoke of one case of injury of the pancreas but did not say whether he used drainage. I wish to ask about this for I believe in cases of injury to the pancreas a drain should be placed down to the wound in the pancreas.

Dr. J. Holinger: In 1892 I saw a patient with rupture of the aorta, with my friend Dr. Banga. A few days previously the man had eaten a heavy dinner and when he arose swayed back and forth and then fell down, unconscious. He was put to bed and Dr. Banga saw him a few moments later. There was a very small pulse and marked dyspnea. The dulness over the heart was much larger than normal and extended into a dulness on the left at the base of the lung.

There was no paralysis. The man was unconscious for two days but slowly regained consciousness and made a recovery which extended over a period of eight months. During this period there was at times increased fluid in the pericardium and as that disappeared the fluid in the thoracic cavity increased. For a while there was fluid in the abdomen. After two years he recovered sufficiently to go to Europe to live and he died six years later in Munich, where a careful postmortem examination was made. Dr. Banga received an accurate protocol of the examination, which stated that there had been a rupture of the aorta in the convex part of the arch at the insertion of the pericardium. The rupture was about ¾ cm. long, partly inside and partly outside the pericardium. Dr. Banga had made that diagnosis at the time of the accident, and maintained it against several diagnosticians who insisted upon the impossibility of such an occurrence. Six years later his opinion was verified.

Dr. Kuhn, in closing, thanked the gentlemen who had taken part in the discussion.

Replying to Dr. Harsha in reference to fracture of the ribs he stated that one case of rupture of the aorta showed a line of fracture, without separation.

In reply to Dr. Percy regarding drainage of the pancreas, the patient died before the operation was concluded so there was no opportunity to try his method.

INTESTINAL PROTOZOA AND CHRONIC DISEASES WITH ESPECIAL REFERENCE TO CHRONIC ARTHRITIS*

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The average physician's conception of the human intestinal protozoa is expressible by the two-fold idea: that the infection has been acquired in a tropical country, and that some form of dysentery is a constant symptom. The above conception generally contains the very closely related ideas that only one of the myriads of species of these microscopic organisms can be pathogenic to the human race, and that this particular organism must always produce the same pathology in every infected individual.

There are several reasons why this infection is seen more in tropical than colder latitudes. In the first place, the organisms require more or less heat and moisture for propagation. Their resting stage between hosts is much better protected where the climate is mild or warm. The habits of their tropical hosts may be and generally are different from the manner of life of those in the colder latitudes. We may state that it is easier for a protozoan cyst to live outside of its host in a warm season than during cold weather. But this fact concerns mainly the transmission of the infection. The environment of the host certainly exercises a marked influence on the course of these infections. The patient's resistance, anatomical structure and physiological habits are the greatest factors determining the sequellae of any protozoan involvement. If we only could know the chemical components of an upset physiology or a metabolic imbalance we would be able to attack this problem more satisfactorily. It is the chemistry of these protozoa as much as our own that baffles us. We do not know what takes place in ourselves that enables these organisms to live so closely and so persistently with us. Clinically they resemble our dreaded forest fires. They may begin their invasion in a smouldering fire or sweep suddenly out over extensive areas as a great blaze. This intermittent blazing and smouldering character of the infection is seen more often in our latitude than in the tropics. Neither the infection nor its geographical distribution is new. Its wider dissemination is due to our various social turmoils of trade and war. It is a part of the price of commerce and sociability. It is "age old and race wide" and depends neither on climate nor country for its existence.

The symptom of dysentery is very misleading. It chiefly signifies lower colon or rectal irritation, although the upper colon may be at times the important seat of trouble. The most extensive lesions usually produce most dysentery However, a very widespread and extensive protozoan infection often exists with a very profound and stubborn constipation. It may even be present with a seven to eight day cecal retention. In the presence of a diseased gall-bladder or pancreas a dysentery or diarrhea started from a colon irritation may continue indefinitely until the adnexal infecting focus is cleared up. Obstructing hemorrhoids or uterine fibroids may prolong a dysentery, the etiology of which has disappeared long before. There is no doubt that accumulated intoxication is a most frequent accompaniment and cause of intermittent diarrhea with constipation. This accumulated toxin probably acts in the same way as any other chemical irritant. In addition to irritating the intestinal

*Read before the Inter-State Post Graduate Assembly of America, Milwaukee, Wis., Oct. 27-31, 1934.

mechanism these toxins when absorbed enter into the course of many of the chronic diseases, as we shall attempt to show below. Strangely enough, the conception of protozoan toxemia is not a very prevalent one medically. However, our most deadly toxins seem to be found among the large protein molecules, as in snake venom and the ptomaines. The toxic expression in many chronic diseases is only the slowing down process present in the acute forms referred to above. Add to this poison, the effect of a disturbed physiology of particularly affected organs and the chronic pathology is that of the chronic protozoan case.

In the light of the above reasoning it seems again plausible that the same organism may apparently produce a varied pathological picture. It may be considered etiologically as a modifier of both physiology and pathology. It can occur in both the acute and chronic forms and in that guise may be as varied in picture as lues, leprosy, or tuberculosis.

This variation is further enlarged by the great variety of organisms. Besides the ameba histolytica or dysenteriae, there are many other protozoa concerned in this pathological role. As clinicians we should concern ourselves more with finding protozoa than with one of its species—the ameba; for undoubtedly, as with bacteria, we are dealing with numbers of pathogenic species.

The geographical distribution of these organisms is extensive. In checking over our present series of cases, we find thirty-two states and eight foreign countries represented. The histories clearly indicate that the disease was incipient in these different localities. Certain of our central states make up as much as thirteen and fourteen per cent of our total cases.

The organisms encountered in the order of their frequency are chilomastix mesnili, the amebas, trichomonads, Giardia or Lamblia, craigia, and Waskia. The blasto-cysts, the spirillae and the fatty crystals deserve significant mention although they are not protozoa. For a differential study of these organisms the reader is referred to the works of Kofoid, Dobell and others. Alfred C. Reed[1] has given a terse, plain and helpful description from the practical clinician's standpoint. However, in acquiring knowledge of these organisms no amount of textbook description can take the place of laboriously repeated microscopical examination of the stools. With such labor and repetition the "protozoan eye" will certainly be gotten. With such an attainment the identification of organisms is not essentially difficult. Without discussing their cytology, I think we may mention some of their habits and our clinical impressions of them as species. Culturally we can say little about them. None of them has ever been grown in either the profusion or the purity necessary for experimental work on either their toxins or their etiological relations. As we find them in daily practice, the chilomastix undoubtedly predominates. It occurs two or three times as often as the amebas and is almost two to one with all other protozoa combined. It is common in the cases of short diarrheas alternating with longer periods of constipation. It is associated most frequently with the clinically toxic case showing colon stasis and periodic "spells" of unknown etiology and varied symptoms. Rae Smith[2] has repeatedly demonstrated this type of a case in his extensive work on colon stasis.

The ameba dysenteriae or histolytica is probably, as to name, the best known of the entire group of protozoa. It is undoubtedly the greatest tissue invader of the entire group. While there is much proof that it may establish its habitat in any organ of the body, its home is predominantly in the colon. By blood or lymph stream it may be carried to any part of the body, where logically its death is sudden and sure because its resistance is extremely low. As a cyst, however, it exists both in the colon and outside of the body. Recently Sellards[3] has proven that the cysts may excyst within the colon as well as the upper ferment-producing intestinal tract. He has introduced a strong proof that we may reinfect ourselves by our own cysts. This organism may produce dysentery. It is found most often in constipated cases, accompanied by such symptomatology as arthritis, neuritis, iritis, melancholia, malnutrition, and neurocirculatory-asthenia. In the diseases showing so commonly a hidden toxic element, these organisms are abundantly present in the colon in a percentage too high for coincidence.

The trichomonad is a very active and abundant organism and is often associated with irritative symptoms such as the simple but persistent attacks of diarrhea or general intestinal un-

rest. The nutritive state is often upset and the symptoms blend closely with those of the amebic cases. The trichomonad diarrheas are sometimes very intractable if not practically incurable. These organisms seem to be able to inhabit the digestive tube from the pylorus down. A different species is able to produce a practically incurable infection in the cervix uteri.

The giardia or Lamblia is about fourth in incidence. It possesses a sucking pad enabling it to adhere smotheringly to the cells of the mucus membrane of the duodenum. We have found it present in a number of duodenal ulcer cases and in all cases there is a distinct duodenal symptomatology. The cysts abound in the colon, but the active organism is seldom found in the stool.

The Craigia and Waskia are not very often found, but may exhibit themselves in cases similar to those described above.

The blasto-cyst may be only a yeast, but it has all the protozoan earmarks. It should always be recognized because of its being so often associated with one or the other of the protozoa.

The fatty-acid-like crystals or needles should be mentioned with protozoa because they are found so often together. They are probably not fatty-acid but are certainly an evidence of a disturbance in digestion or metabolism.

Next I shall take up the varied clinical picture when these protozoa are preponderously present somewhere in the human digestive tract. This clinical picture must be a composite one because of the multiple factors concerned. It would be preposterous to discuss all bacterial diseases under one clinical head, and the reason for this needs no elaboration. If we were without cultural and animal-experimental proof with bacteria, the etiology of bacterial disease would then rest on the same basis as does protozoan infection now, and that would be essentially a clinical picture of great variation. It so happens clinically, without any effort to prove anything or to establish any new law, that certain diseases whose bacterial etiology is still unproven, are heavily laden protozoan carriers; and furthermore, amelioration of the clinical condition goes hand in hand with the progress of protozoan eradication. I realize that this is not an infallible proof of etiology, and I do not give it as such; however, you will all agree with me that successful administration of diphtheria antitoxin has convinced us of the etiology of the disease when the proof was only clinical. Much stronger is the claim when clinical syphilis is cured by salvarsan in the absence of all laboratory proof. Etiological malarial fever is hardly doubted, when the usual treatment results in a substantial clinical cure. So it seems to me that it ought not be so hard for our etiological camel gulpers to swallow an occasional gnat. At this time I do not wish to present these organisms as the sole cause for certain pathological entities. I wish rather to point to them as a highly potential factor in influencing the course of several chronic disease states, chief among which are chronic arthritis of Ely's Type 2,[4] certain types of neuritis, especially those connected with malnutrition as worked out by McCarrison; iritis of the systemic type as described by Lloyd Mills,[5] the neurocirculatory asthenias as reported by Harlow Brooks,[6] and other well known but not etiologically diagnosed conditions. There are certain constants in the clinical history, physical findings, and laboratory examinations of these patients that cannot be disregarded in the reasonings from cause to effect. The diseases are essentially chronic. The patient's total vitality and functions are lowered. There is a lack of energy and interest even to the point of self destruction. Often the symptoms are duodenal, as in ulcer, or cecal, as in chronic appendicitis, even with the appendix removed. Wherever the complaint may be localized, the digestive apparatus is involved somewhere in the history. Harlow Brooks[6] in discussing "Neurocirculatory Asthenia" says, "constipation, frequently alternating with diarrhea, is common. Mental status greatly influences all the gastro-intestinal signs and symptoms." To my way of thinking, it is more nearly true to reverse the sentiment of his last sentence; for clinically and by laboratory findings "the gastro-intestinal signs and symptoms greatly influence the mental status." The above chain of symptoms is not improved by the removal of the ordinary foci of infection such as teeth, tonsils, etc. However, this is not an argument against focal infection. It is only adding another big focus.

Following this chain of complaints through, we find the ending so often is chronic arthritis, neuritis, iritis, malnutrition, endocrine disfunction, mental and nervous disorders, epiliptiform

attacks and even diabetes. No one thing could ever be the cause of this array of syndromes. Yet they have several things in common, and one very important thing is the almost constant presence of some one or many of these protozoa in the intestinal tracts of these patients.

The physical findings, in addition to those of the leading ailment, reveal generally tenderness over the affected viscera, a low blood pressure and by x-ray some faulty intestinal mechanics, due to chronically formed adhesions produced by former protozoan infections.

The laboratory specifically may be expected to show a low normal in leucocytes and more especially a depression in the polynuclear cells from a low normal to even forty per cent. In such a case, an ulcerative appendicitis will not show a leucocytosis until rupture has occurred and time has elapsed for the bacterial invasion to change the blood picture. Here the leucocyte count is not so much the evidence of a lowered resistance as it is the proof of a chronic protozoan process giving way to an acute bacterial invasion.

The stool analysis fits harmoniously into the above findings. It may or may not contain blood and is generally alkaline in reaction. The percentage of needle-like crystals, in clusters and singly, is very high. Blasto-cysts are fairly common and often occur in the worst cases. With the above clinical, physical and laboratory picture, protozoa of some type are present in practically one hundred per cent. The percentage is certainly too high for coincidence.

The following cases have been selected illustrative of certain representative groups showing the picture referred to above.

Case 1. Arthritis, Ely's Type 2. Mrs. McL. Age 60. Duration four years. Severe pains in hands, elbows, shoulders and knees. Walks with much difficulty. Bowels generally constipated with periodic diarrheal attacks. Teeth out five years ago. Tonsils out eleven years ago. Bp. 110-80. Cecum and sigmoid full and very tender. Wbc 5000, Poly 68, Monos 32. X-ray negative for stasis. Stool shows triple plus active chilomastix with one plus crystals.

Results: After one and one-half years' treatment, improvement marked. Free from pain. Uses hands, fingers and elbows freely and walks well.

Case 2. Arthritis, Ely's Type 2. Mr. O. W. Duration four years. Generalized painful joints with apparent ankylosis of left knee. All joints involved and many with right angle contractures. Tonsils out and all teeth good. General abdominal tenderness with painful sigmoid. X-ray showed no stasis or gall-bladder or appendiceal involvement. Wbc. 5000, Poly 55, Monos 45. Stool shows chilomastix and cysts double plus with one plus crystals.

Results: Patient able to walk about and use joints freely the first time in one and one-half years.

Case 3. Arthritis, Ely's Type 2. Mrs. A. H. Age 25. Has suffered from chronic arthritis and bronzing of the skin for three years. Completely bed-ridden. Unable to move upper or lower limbs. Severe pains throughout all joints. Bp. 100-60. Teeth and tonsils normal. X-ray shows chronic appendix and cecal adhessions with a 96 hour cecal stasis. Wbc. (during bronchitis) 11,300, Poly 62, Monos 38. Stool loaded with ameba dysenteria, ameba coli, chilomastix and crystals. Appendecostomy and surgical correction by Dr. Wm. H. Olds.

Results: Patient walks to office for treatment; has fully seventy per cent restoration of function and the pains are nearly all gone.

Case 4. Arthritis, Ely's Type 2. Miss H. F. Age 22. (Referred by Dr. Leonard Ely.) This patient has suffered from chronic arthritis and enterocolitis for eight years. Wrists, knees and elbows badly involved. All joints show changes. Bowels severely constipated. Tonsils out eight years. Cecum and sigmoid very tender. X-ray shows stasis and cecal adhessions. Wbc. 5500, Poly 63, Monos 37. Stool shows abundance of chilomastix and numbers of ameba dysenteriae. Appendectomy and surgical correction by Dr. Olds. Usual treatment carried out. Results: Has regained normal weight and walks comfortably now after having been in wheel chair and bed for years.

Case 5. Arthritis, Ely's Type 2. Mrs. M. S. Age 70. Duration ten years. Chronic arthritis, all joints both hands. Patient also has entero-colitis with some myocarditis. Bowels severely constipated. Bp. 140-70. Teeth out. Tonsils negative. Systolic heart murmur. Severe tenderness descending colon. Wbc. 6400, Poly 56, Monos 44. Stool shows abundance of chilomastix and cysts, also spirillae and crystals. Urine examination shows the presence of indican.

Results: Pains and swelling practically gone. All joints useful.

Case 6. Arthritis, Ely's Type 2. Mr. H. M. Age 40. Duration 2 years. Arthritis of all joints, deforming. Severe constipation. Bp. 115-75. Teeth O. K. Tonsils out. Appendix out. Very tender cecum. Wbc. 8800, Poly 69, Monos 31. Stool shows active chilomastix and ameba dysenteriae. The x-ray was negative for gall-bladder, adhesions or stasis. Results: After one year of treatment, patient does full work, takes mountain hikes without pain.

Case 7. Iritis. Mr. S. Age 40. Duration five years. Bilateral recurring iritis. Bowels constipated. Bp. 110-70. Teeth good. Tonsils out. Iridectomy, right eye. Pupil in left eye fixed from adhesions. Tenderness over cecum and sigmoid. Wbc. 5700, Poly 60, Monos 40. Patient had twenty-six negative Wassermann tests. The stool examinations showed an abundance of ameba dysenteriae. The x-ray was negative. Results: No results from fifty injections

of neo-arsphenamine and many treatments of gonorrheal vaccine. Prompt relief and a discontinuance of atropine and symptoms on anti-amebic treatment.

Case 8. Iritis. Miss N. M. B. Age 45. Duration ten years. Chronic iritis, stomach trouble and intestinal colic. Periodic constipation and diarrhea. Bp. 80-50. Teeth cared for. Tonsils out. Sinuses negative. Right eye previously removed, left severely inflamed. Abdomen extremely tender over entire colon. Wbc. 6800, Poly 63, Monos 37. Stool examination showed ameba dysenteriae and chilomastix. No blood was found. Results: Inflammation cleared up after routine amebic treatment.

Case 9. Iritis. Mr. C. C. Age 24. Amebic iritis. Duration two years. Recurring iritis. Right eye previously removed to stop iritis. Bowels usually constipated. Bp. 115-80. Left eye inflamed. Teeth O. K. Tonsils out. Sinus O. K. Abdomen tender over entire colon. Wbc. 8800, Poly 67, Monos 33. Stool examination revealed ameba histolytica, or dysenteriae councilmania and trichomonads. The x-ray was negative. Results: Treatment cleared up iritis. Patient has remained well for last ten months.

Case 10 .Mental Type. Mrs. L. E. Age 46. Melancholia and enterocolitis. Duration four years. Very nervous and melancholy. Bowels always constipated. Bp. 90-70. Tonsils and teeth in good condition. Sigmoid very tender. Extremities negative. Ameba histolytica and chilomastix shown in stool examination. The x-ray was negative. Results: Before treatment patient attempted suicide. Six months after treatment she was very happy and well and mental state was normal.

Case 11. Dysentery Type. Mr. B. A. V. Age 35. Chronic amebic colitis—anemia. Duration eight years. Watery stool, three to ten daily, blood and mucus. Loss of weight. Poorly nourished, anemic. Bp. 90-60. Teeth and tonsils in good condition. Entire colon tender. No hemorrhoids. Wbc. 7000, Poly 59, Monos 41. The stool examination revealed active ameba histolytica and blood. Results: Treatment off and on for one and one-half years resulted in complete cure.

Case 12. Epilepsy. Mrs. M. C. B. Age 29. Epilepsy and chronic enterocolitis. Duration fifteen years. Epileptic attacks and loss of weight. Bowels constipated. Bp. 100-55. Slightly anemic. Tonsils chronic. Teeth out. Thyroid large. Slight tremor of hands. Tender cecum. Appendix scar. Wbc. 7000, Poly 47, Monos 52. Sputum negative. Ameba histolytica found in stool examinations. No blood. The x-ray was negative. Results: Attacks very much lighter. Last one eight months ago.

The treatment aims first to eradicate the intestinal protozoa and second to correct the secondary pathology. For the former there is no specific parasiticide. In fact, our failure to kill these organisms by some specific drug or method of treatment is often urged as a proof against the pathogenicity of these parasites. That there is no specific treatment is evidenced by the number of drugs and devices used to cure these conditions. When carefully and properly used, ipecac and its alkaloid emetin are basic drugs, the use of which is of common pharmaceutical knowledge. Arsphenamine and its derivatives have proven helpful, especially with giardia, and probably aid in amebiasis. The enemeta are in common use and serve a good purpose but should never be used to the point of irritation. Diet probably has no influence on the growth of the organisms and little effect on the disease treated. However, Kessel[1] working in Kofoid's laboratory has shown that animals rid themselves of amebic cysts when confined to a diet of milk. Clinically protein diets have very little influence on the organisms in question. Good food is the best diet and should be selected to influence either diarrhea, constipation, obesity, or malnutrition.

The treatment of arthritis is certainly always medical and orthopedic. Many cases require corrective abdominal surgery before either of the above treatments can accomplish results. Neither orthopedic nor medical care can restore normal physiology of the intestinal tract in many of the severe arthritis cases. The protozoa are to abdominal pathology what the gonococcus is to gynecology. The medical study should determine the surgical need. The one word, persistence, is the keynote in all treatment.

In conclusion I wish to stress the following things:

The distribution of human protozoal infections is widespread. There is no one symptom by which their presence may be known clinically. They are associated with diseases exhibiting depressive and toxic syndromes as yet unexplained in medicine. They exist essentially in a chronic state. Their eradication is slow, tedious and at times uncertain as is the treatment of chronic diseases. Persistence in treatment with rational honest effort on the part of both physician and patient make up the morale necessary to win this great battle against chronic disease.

Especial appreciation is expressed to Miss Estella Campbell for her careful and scientific laboratory work.

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THE RELATION OF ETHMO-SPHENOIDITIS TO SOME DISEASES OF THE EYE, EAR, AND OTHER ORGANS*

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In preparing this paper the author has made no special effort to be original, but rather to correlate and systematize all of the more or less limited information on the subject from the experiences and investigations of others, which are in harmony with the results of a fairly thorough study of, and a rather wide experience in this, one of the most important, if not the most important field, in the realm of the otolaryngologist.

Of all the accessory sinuses, the ethmoid and sphenoid are least understood, for the very good reason that in the past it has been far more difficult to diagnose disease in these particular cells, than in the others. But with the assistance of improved methods we are enabled to diagnose disease in these as readily as in the other cells; and as we go more and more deeply into the subject, we are able to uncover quite a few surprises for the diagnostician. The etiology of disease in other organs leads us unerringly to disease of the ethmoid labyrinth and sphenoid sinus, as a predisposing cause so frequently, that I sometimes find myself wondering if they can be the center of disease-distribution for the entire body.

Anatomy. Before I go into my subject, I think that perhaps it might not be unwise to devote some time and space to a description of the anatomy of this region, and the relation of the particular sinuses in question to the adjacent parts. This knowledge may enable us to better understand what is to follow.

The ethmoid labyrinth and sphenoid sinus bear a peculiar anatomical relation to each other and to the surrounding parts, as will be seen. The ethmoid labyrinth forms during fetal life and is fully developed at birth, while the sphenoid sinus forms during the first three years of postnatal life. The labyrinth embraces all that portion lying between the two internal lateral plates of the orbit. They are therefore separated from the cellular tissue which covers the eye only by the thin layer of bone known as the lamina papyracea. They lie in the lateral wall of the nose external to the middle turbinate, and extend antero-posteriorly from a point beneath the frontal sinus to the anterior wall of the sphenoid. The ostium which drains the most posteriorly located cells of the labyrinth lies so close to the ostium of the sphenoid that disease-secretions from the one invariably intermingle with those from the other. So that, when one of these groups of cells is diseased, the other is invariably involved. That, at least, has been my experience. Both the ostium which drains the posterior cells of the labyrinth, and the one which drains the anterior group, lie external to the middle turbinate, and we must not lose sight of this fact for a moment when seeking a cause for disease in this region. A very slight thickening of the middle turbinate may cause impingement upon the ostea, resulting in impaired ventilation and drainage and ultimately in a development of hyperplastic ethmo-sphenoiditis or even of an empyema. I shall make no attempt to separate the cells of the ethmoid labyrinth into anterior and posterior groups, as I have not found them so separated in disease.

Lastly, I wish to call your attention to the fact that the optic chiasm and the pituitary body lie on the roof of the sphenoid cavity, and the canal through which the optic nerve and its accompanying vessels pass, lies within its inner lateral wall. Meckel's ganglion lies on its external antero-lateral wall between the sphenoid cavity and the most posteriorly located cells of the ethmoid labyrinth.

Etiology. As in the study of the anatomy of this region we find it developed during early childhood, so in the study of the etiology of disease in these parts, we go back to childhood to find the beginning development of the predisposing causes of disease. There is undoubtedly a hereditary factor to be considered in

*Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, Sprinfield, May 7, 1924.

a certain percentage of cases, for I have seen sinus-disease present in several members of the same family at the same time, and in different generations of a line at different times. So also does environment, such as climatic conditions and ventilation of the sleeping-room play an important part in predisposing to disease in this region. But most important of all in predisposing the ethmoid labyrinth and sphenoid sinus to disease, are deformities of the middle turbinate bones, and the septum. But back of this and of primary importance in the development of deformities in the nose are, early hypertrophy of the palatine tonsils and Luschka's glands, and the habit of thumb-sucking, and use of pacifiers. All of these have a tendency to cause a lengthening of the alveolar process in its anteroposterior axis, and resultant bending upward of the hard palate, which encroaches upon the inferior meati of the nose and causes a bending of the septum with which it articulates superiorly, together with an interference with both the ventilation and circulation of the nose and accessory sinuses. So we usually have the vicious circle which results in disease of the ethmo-sphenoid regions, developing during the first few years of life. In this connection, let me add, that the profession has been unpardonably slow in recognizing the importance of investigating the sinuses in every case of purulent discharge from the nose, during even the earliest years of childhood. Those old cases which in the past have been called "snuffles," with complications of eczema on the face and phlyctenular conjunctivitis, were nothing more nor less than manifestations of chronic suppurative ethmo-sphenoiditis, in nearly every case. I have a series of these cases ranging from three years of age up, in which I was able to make a positive diagnosis of an involvement of the ethmoid labyrinth and sphenoid sinus. They were relieved by removal of tonsils and adenoids and then spraying the nose with menthol in alboline.

Classes of Cases. If a patient presents himself for examination, with a history of frequent sneezing, accompanied by loss of the sense of smell, dull headache, mouth-breathing, and bronchial asthma; and if a rhinoscopic examination reveals the presence of a nose filled with polyps and pus, the diagnosis is apparent even to the most casual observer; but if the patient gives a history of having a postnasal discharge, particularly annoying in the morning, on account of the thick tenacious secretions which accumulate in the nasopharynx and pharynx over night, then we have quite a different problem to solve. We might be dealing with a suppurative process involving any or all of the chain of accessory sinuses which surround the nose, and it requires a differential diagnosis to determine which.

There is still another class of cases in which there are no subjective symptoms referring to the nose and which are usually referred to the rhinologist by the ophthalmologist, the latter having come to recognize certain diseases in their field as owing their origin to pathologic conditions of the accessory sinuses. Such cases are increasing rapidly both in number and variety.

For several years, Hajak, who was my preceptor, Saint Clair Thomson, and Sluder have recognized that most cases of optic neuritis are secondary in origin to disease primarily involving the ethmoid labyrinth and sphenoid sinus; but not until recently have they or any of their school realized what a great variety of diseases owe their origin to infections of, or a lack of ventilation in, these particular sinuses. Iritis, optic neuritis, choroiditis, keratitis, phlyctenular conjunctivitis, orbital cellulitis, and blepharospasm constitute only an incomplete list of the diseases of the eye and its appendages which have been proven to be secondary to disease of the cells under discussion. Other organs which have been found involved in the seemingly endless chain of diseases growing out of a primary involvement of the ethmoid labyrinth and sphenoid sinus are: the middle ear, heart, lungs, stomach and different members of the endocrine family, the latter system becoming involved undoubtedly through disease of the pituitary body, which, it will be remembered, bears a close relation to the sphenoid cavity. The ear becomes involved through the Vidian nerve; and the heart, lungs, and stomach through the sympathetic branches from the cervical plexus, which also communicate with Meckel's ganglion. I had a case belonging to the endocrine class, with involvement of the pituitary body secondary to an ethmo-sphenoiditis, with the typical symptoms of suppressed menstruation, increased adiposity and so forth, that go to make up the symptom-complex usually found in disease of this organ; all of which cleared up following exenteration of the

ethmoid labyrinth and removal of the anterior walls of the sphenoid sinus.

The profession was for generations at sea as to the etiology in many of these cases, for the very good reason that there seemed to be a missing link. They did not connect disease in these organs with disease in the sinuses, for the reason that they did not know there was direct circulatory communication between the sinuses and the adjacent parts. But Uffenordi found vessels communicating between the membrane lining the sphenoidal sinus and the optic sheath in the optic canal—*post mortem;* Sluder found a lesion on the wall of the optic canal, on examination of the sphenoid cavity, after removing the anterior wall, in a case of serous iritis; and Kleijn and Gurlach found an encapsulated diplococcus in the secretions and membrane of the sphenoid and the optic sheath, in the optic canal, and in the optic nerve—*post mortem.* These investigators have, in my opinion, proved conclusively that there is direct communication between these sinuses and the adjacent organs. If we needed any further proof than this, I think we get it when, after placing a cocainized pledget of cotton on the lateral wall of the nose over Meckel's ganglion and waiting a few minutes, we find pain relieved in any of the parts of distribution of the sensory branches that pass through this ganglion. I am convinced that the effect of the anaesthetic could reach the ganglion so quickly only through perfectly formed channels directly connecting the lining membrane of the nose with the ganglion; and if it is true in this case, why should it not be true in the case of the sinuses and adjacent organs or parts?

In view of this knowledge it would surely be unwise for the rhinologist to make a negative report simply because there are no subjective symptoms of nasal disease and no evidence of an active sinusitis. A careful examination of such a case will usually disclose a septum with a superior deflection, accompanied by an hypertrophied middle turbinate on one or both sides. There may be no evidence of disease other than a slight blanching of the mucus membrane over the turbinates, so that they appear waxy, and a distinct glistening of the surface of the membrane covering the anterior wall of the sphenoid; and transillumination and x-ray are both negative. But Hajak, Sluder, myself and others have been able to demonstrate, repeatedly, that such a picture may be the primary cause of the very worst phases of secondary involvement of the eye and its appendages, or of an involvement of the heart, lungs, stomach or kidneys. It is not yet satisfactorily established whether the last named organs are affected by an auto-intoxication produced by disease in the ethmoid labyrinth and sphenoid sinus, or through nerve-influence. The writer leans to the latter theory.

We have as yet found no satisfactory explanation for the fact that diseases secondary to the low forms of inflammation in this region should be more virulent than in the more active forms, but it has proved true in practice. Possibly the germ has spent some of its virulence during an active suppurative process of the sinuses, before it reaches the adjacent parts. We know that nature makes a valiant effort to prevent the spread of disease; and I think I can see how such an effort might cause the production of a sufficient number of anti-bodies to reduce the virulency of the germs.

Diagnostic Aids. Transillumination is of very great value in the examination of the maxillary sinus. One seldom fails to discover evidence of disease in this sinus by the use of this diagnostic aid, if the technic is right. This is also true of the frontal sinus, if we bear in mind the fact that there is often only one of these sinuses and that it may extend beyond the median line. But I have found transillumination of very little value in diagnosing disease in the ethmoid labyrinth and sphenoid sinus.

The x-ray is a very valuable aid, and no surgeon should undertake an operation on any of the accessory sinuses without previously having had a radiograph made of the region affected. I have found additional isolated ethmoid cells anterior to the shoulder of the middle turbinate, and I have found a partition in the sphenoid cavity, which thus produced two distinct cavities. In the absence of a radiograph of the field of operation, in the presence of either of the anomalies mentioned above, the operation would prove a complete failure.

A Mazda lamp should be used in examining this region and a Holme's nasopharyngoscope is of invaluable service in the preliminary office-examinations.

In the presence of a frank suppurative process, it is usually quite a problem to determine which cells or groups of cells are involved. Because of

the fact that the maxillary sinus, frontal sinus, and anterior group of the ethmoid cells all empty their secretions beneath the middle turbinate at the same point, it is not difficult to determine that one or all are involved in a suppurative process; but it is something different to be able to say which of them are affected. It is also true that the mere presence of pus in the naso-pharynx does not essentially mean that the ethmoid labyrinth and sphenoid sinus are involved. Skillern has suggested a method which I have found very satisfactory in making a differential diagnosis of suppurative sinusitis. Introduce a small quantity of powdered methylene blue on a cotton pledget, into the sphenoid, after thoroughly cleansing and drying all the meati. (The author has not always found it possible to probe the sphenoid cavity, because of the deflections of the septum, which are so frequently present in these cases). Then a small quantity is insufflated through a Lichtwitz needle into the maxillary sinus. The patient is instructed not to blow the nose or clear the throat until the next morning; then to use a large towel and blow the nose, but not too hard. He then uses still another towel, and spits into it the secretions brought up by rasping the epipharynx and hawking. A comparison of the color of the discharges will usually enable the surgeon to determine whether the anterior group of sinuses or the posterior group is affected. Then, transillumination and the x-ray will usually complete the diagnosis. However, we should not lose sight of the value of the subjective symptom—a continuous, general, pressure-headache, usually somewhat more marked in the frontal region, in an involvement of the ethmoid labyrinth and sphenoid cavity; also a tenderness at the naso-orbital angle and the objective symptom of tenderness in the infra-orbital region, in maxillary sinusitis.

Treatment. I believe that all uncomplicated cases of acute suppurative sinusitis should be treated by the suction-method. But with the first appearance of symptoms of complications involving the eye and its appendages, or other organs that may be affected by disease in the ethmoid labyrinth and sphenoid sinus, I practice surgical interference. If the case has reached the subacute stage before I see it, unless there are some special contra-indications, I advise immediate operation. In all cases of chronic suppurative ethmo-sphenoiditis, and in every case of hyperplastic ethmo-sphenoiditis with complications, I have found it wise to do a radical operation at once.

Choice of Operation. Andrews and others have advised conservatism in surgery, and the former (if my memory does not play me false) advises the fracture of the middle turbinate and an attempt to search out the particular cells involved and exenterate these only. Such a procedure has not proved successful in my experience, and I agree with Hajak, Sluder and Beck that a complete exenteration of the ethmoid labyrinth and removal of the anterior wall of the sphenoid sinus is the only sure route to success.

There are a number of good operations, any one of which might prove successful, if properly carried out. The main idea should be to develop a technic and follow it very religiously.

The following has proven successful in my hands: After saturating a pledget of cotton with adrenalin 1:1000, I roll it in flake crystals of cocaine and apply over Meckel's ganglion. Then, one or at the most two pledgets are used in the olfactory cleft, with the patients head bent well forward. About twenty minutes are required for complete anesthetization, in the average case. In a Jewess or an Italian woman a longer time may be required. Then with turbinate scissors I cut the middle turbinate, leaving it attached posteriorly; it serves as a very valuable landmark. Then I begin a half-inch anterior to the shoulder attachment of the turbinate, and with a curette scoop out all the cells of the labyrinth, being very careful not to perforate the lamina papyracea. When this is done I detach the turbinate and proceed to remove the anterior wall of the sphenoid sinus, with a Hajak forcep. No packing is used except a little cotton in the vestibule of the nose, on the side operated on. The following day I institute suction-treatment in the suppurative cases, and irrigation with a normal salt-solution, if, of the nonsuppurative type.

DISCUSSION

25 E. Washington St.

DR. J. A. CLARK, Chicago: Along the line of these cases that Dr. Thompson has just been reading about, there is something I have never seen but once in my life and never read of. A young man about 15 years of age came into the office referred to me some months ago. The history was that about 7 or 8 months ago he had contracted a little cold, an ordinary cold. While working around the school he became a

little sweaty and took a plunge bath in the tank. The next morning he got up with a complete paralysis of the right side of his face. That is all the symptom that he complained of. That paralysis remained constant for 5 months without any improvement whatever. One day he had a tremendous discharge of pus from his nose, the mother said, and from that time his facial paralysis cleared up. So that there was nothing from the time he came in except a very little ptosis of the upper right eyelid. The case had cured itself by discharge of pus probably from the ethmoid or sphenoid cells. The only tract that you can trace back where you get paralysis from an infection of the ethmoid cells and affect the facial nerves would be that rather round about way of infection following back through the Vidian nerve to the facial. If there is any other tract that it can get through I do not know what it is. It is a peculiar case, so far as I am concerned. I never saw one or read of any case or anything like that

DR. EDWIN McGINNIS, Chicago: This is a very wide field, and certainly we all appreciate Dr. Thompson's covering the subject so very thoroughly. I have done a good deal of ethmoid surgery and for a good many years now I have been able to do anything I want to do with the ethmoid labyrinth without disturbing the middle turbinate at all, except to push it over towards the septum. If you preserve the middle turbinate and turbinal plate, you avoid a great deal of postoperative hemorrhage and always have a landmark so that if your first intervention on the ethmoid labyrinth does not clear up the case you can reopen it at any time you want to, and this goes for as long as the patient lives.

There is another interesting point. In all the ethmoid surgery I have done in the last year or two I have been very much surprised to find that in only one or two cases have any of the posterior ethmoid cells been involved, except the lower cell of the bulla. The lower bulla cell is classed as the posterior ethmoid cell because it drains behind and above the attachment of the middle turbinate. Following through the posterior cells you will be surprised to find that the mucosa looks like mother-of-pearl, like the inside of an oyster shell. The mucus membrane is not a bit edematous. Also, I think we have done a good many posterior ethmoid exenterations that were not necessary—when you stop to think that most of the trouble that comes from the ethmoid is bacteriological and that the anterior cell group constitutes a fine place for bacteriological growth, the cells of the anterior group are small, they drain underneath the attachment of the middle turbinate and the ostii are small and will be obstructed by swelling of the mucosa around the ostium and so stop the drainage.

DR. A. H. ANDREWS, Chicago: I had supposed and still believe that most of the rhinologists are following the more conservative way of handling the ethmoids. There was a time when Killian taught that thorough exenteration of the ethmoids the frontal the sphenoid and the antrum was the only way of handling these chronic inflammations, but he is reported to have changed his attitude, while a good many of his admirers are still following the old teaching.

I fully agree with what Dr. McGinnis has said concerning the conservatism in ethmoid operations. Ethmoid disease may be caused either by infection or by closure of the openings with resulting rarefaction of air and negative pressure. The latter condition may cause all the results of the former except the absorption and the discharge of pus.

I am inclined to think that in the case which Dr. Clark mentioned the neuritis was kept up by the infection and that it did not recover until the source of infection was eliminated by the discharge of pus from the nose.

DR. W. MOORE THOMPSON (closing): In regard to the case Dr. Clark has so kindly brought to our attention, I would say it bears all the earmarks of a case of Bell's Palsy. The onset following a cold shock to the face and neck would seem to mark it as such. I doubt very much if the discharge from the nose bore a direct relation to the paralysis. However, I can see how an involvement of one or more of the accessory sinuses might so lower general bodily resistance, as to retard the recovery from a paralysis, such as that described by Dr. Clark.

In reply to Dr. Andrews I wish to state that, if by "conservative surgery of the ethmoids" he means that we should first try the suction method in all acute cases and that the surgeon should always make sure of his diagnosis, then we heartily agree with him, but if he means that we should fracture the middle turbinate and try to search out the diseased cells in each individual case, then he stands almost absolutely alone in that class of surgery. He would fall far short of success in at least 50 per cent. of his cases, and while he might get to re-operate upon most of those so treated in his clinic, only a negligible number of those so treated in a private practice would submit to a second operation. So I can find but two possible justifications for such surgery: That the radical operation on the ethmoids reduced the normal functions of the nose, or opened up the way for further complications, and neither has been found true by any of the great investigators.

THE SIGNIFICANCE OF THE COLON IN ABDOMINAL DISTRESS*

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It is not the purpose of this paper to bring out any new and startling facts in the diagnosis of abdominal distress, for I have none. It is hoped that we may stimulate a much-needed work, that is, more accuracy in the diagnosis of abdominal conditions. This paper will be

*Read before the Kane County Medical Society, November 20, 1923.

limited to the discussion of the non-inflammatory irritations to the intestinal tract, particularly the colon, and their differential diagnosis.

In taking up a discussion of any part of the body we should review its anatomy and nerve supply. The colon is divided into the ascending colon, the transverse colon, the descending colon and the sigmoid colon.

The mucous membrane is composed of a smooth surface, simple columnar epithelium, long glands and a basement membrane. Next, the submucosa is made up of loosely arranged connective tissue that contains large blood vessels and nerve plexus of Meissner. Then the muscular coat is made up of an inner circular layer and outer longitudinal layer of smooth muscle. The outer longitudinal layer is not complete but is bound together by connective tissue. The outside coat of the bowel is the serosa, or the peritoneal layer.

In the connective tissue lying to the outer side of the circular muscle coat are the plexuses of Auerbach. These are groups of sympathetic ganglion cells whose fibers are non-medulated and reach the intestinal wall through the mesentery, from the sympathetic cords. From Auerbach's plexus, the fibers pass to the submucosa where they are associated in plexus with groups of sympathetic ganglion cells—the plexus of Meissner. From Meissner's plexus delicate fibrils pass to their termination in the muscularis, submucosa and mucosa. There is also some supply to the intestines through the vagus nerve.

It has been a long known fact through experiments that movements of the intestinal tract may be stimulated in many ways in addition to the direct stimuli.

First, *nervous irritation.* Everyone, no doubt, is familiar with the desire for stool or desire to urinate that comes after any fright, fit of anger, or intense responsibility. The athlete, as he is waiting for the gun to start the race, the actor who has a responsible part, the person who is frightened by a burglar—all of these will have an increased activity of the intestinal tract and particularly of the colon with a resulting desire for stool. Then the naturally high-strung, temperamental and emotional individual who lives a life of nervous tension has a constant tension on the nerves of the intestines and every increase of nervous irritability has a tendency to cause an increase in the normal peristaltic movements of the intestines, causing, if persistent enough, a spasm of the intestine which will result in pain.

It has been said many times that if the nervous system of an individual could be controlled, the treatment of intestinal conditions would be relatively simple.

With this nerve irritation as the first cause of the non-inflammatory irritation of the intestines, it forms a definite basis for all the other causes.

Secondly, *mechanical irritation.* Mechanical irritation may result from one of two factors or from a combination of both. First, a ptosis of the colon. There has been a great deal of discussion, in the past few years, concerning the position of the stomach and bowels in the abdomen. Some very good men hold the view that the abdomen is made to hold the abdominal organs and therefore the position of the organs does not produce any symptoms. The opposite view is held by equally good men. Doctor Coffey, a very able surgeon of Portland, is the greatest advocate of this view.

It is not within the scope of this paper to discuss the ptosis problem except to point out that in the experience of many physicians there is a definite distress and pain in the abdomen due to this ptosis of the colon, associated, it may be, with ptosis of other organs and with a very definite constipation.

Doctor Coffey and his associates have gone through their records and have found that, of the patients going through their Clinic who had previously had the appendix removed elsewhere because of chronic appendicitis, seventy per cent had not been benefited. Doctor Coffey also states that he is convinced that more than half of the patients coming with chronic right-sided abdominal pain have no definite organic disease.

Secondly, mechanical irritation may be the result of the use of cathartics or large enemas. Based on the wide experience of many hundreds of cases of one of the leading gastro-enterologists of the world, this one cause, carthartics and large enemas with the factor of increased nervous irritability as a basis, is the greatest cause of abdominal distress. Everyone, no doubt, is familiar with the fact that cathartics and large enemas are two of the greatest factors in producing a chronic constipation. The physiology of the gastro-intestinal tract is such that it takes from twenty-four to forty-eight hours for the

residue from the food to pass through it. Therefore, if an individual is completely flushed out, either by a cathartic or by an enema, there is no more residue for a bowel movement for at least one or two days and very frequently for three days, because usually the patient, in this condition, has no appetite.

What is the function of a cathartic? It is to increase the intestinal peristalsis and produce a quick stool. We know many individuals who, as soon as they take a cathartic, have intense cramps and loose stools. If this is repeated and this same irritation to the intestinal tract goes on every day for fifteen or twenty years, what will be the result? Large enemas will cause the same irritation and in addition will dilate the bowel. We have seen many instances where, after a long-continued use of large two-quart enemas and cascade enemas, the bowel has lost all its tone and has become so relaxed that it would not function properly.

This long-continued irritation resulting in a spasm of the bowel will give clinical symptoms of pain, fullness, pressure and weight, gas in the abdomen, belching, etc. The pain and tenderness may be only on the right side or in the center of the abdomen below the zyphoid or it may be on the left side, but in many cases it is all over the abdomen in general. It is not known why, with these irritations, one particular area of the colon may be affected more than another part. These patients are usually in a very nervous condition and anticipate serious things. There are a few cases of constipation where cathartics have been taken over a period of years that have no distress or pain at all, but these are few in comparison with those that have distress.

The third source of non-inflammatory irritation to the intestinal tract is a fermentative condition resulting from the fermentation of foods forming carbon dioxide, methane and hydrogen sulphide. These gases act as stimuli to the intestinal tract, increase peristalsis and cause the symptoms mentioned before.

From all these irritations to the intestinal tract the normal peristalsis of the colon is increased from a slow, lazy peristalsis to a fast, hard cramp movement giving a typical group of symptoms. More than half of your case histories in general medical work will show symptoms similar to these—*distress in abdomen, fullness, pressure and weight, bloating, belching, gas from the bowel, rumbling and gurgling, constipation, cathartics, nervousness.*

The distress in the abdomen will be varied. It may be a fullness, pressure and weight or a real cramp-like pain localized or generalized over the abdomen. Uusually, however, in the non-inflammatory irritations the distress will be at the level of or below the navel. The distress is usually either while eating or within ten, twenty or thirty minutes after eating. It is usually present every day and after nearly every meal over a period of months or years, if the irritation is continued over that period. The distress is usually associated with belching and the passing of gas from the bowel and in a great many cases there is also rumbling and gurgling throughout the abdomen. There is usually a history of long-standing constipation and of the use of cathartics or large enemas every night or every few nights over a period of a great many years. The nervous condition of the patient is practically always increased and headaches are many times an associated factor.

The above group of symptoms and history is very typical of the non-inflammatory irritation of the intestinal tract. If these cases were clear-cut and always indicative of non-inflammatory irritations of the intestinal tract, the diagnosis of abdominal conditions would be simple, but unfortunately, the symptoms can be very closely simulated by symptoms that are caused by inflammatory processes in the gall bladder and in the appendix.

The symptoms of an acute appendix or of an acute gall bladder condition are usually definite and clear-cut so that with the aid of the temperature, leukocyte count and the type of abdominal distress the diagnosis may be very accurately made. It is the sub-acute and chronic type of appendix and the old chronic gall bladder with or without stones that very closely simulate the above symptoms. A recent case brings to our attention just such a condition.

A patient came in for diagnosis of his abdominal distress. He was a very neurotic individual and complained of varied symptoms. His chief symptom was pain in the abdomen below the zyphoid and general pain over the entire lower abdomen. This was an intermittent, cramp-like distress associated with a fullness, pressure and weight that came on usually within a half-hour after eating but sometimes not until the next meal. His mother stated that he had had more

or less stomach trouble all his life. His bowels were alternately loose and constipated. After a complete examination had been made and temperature was normal, leukocyte count normal and a complete x-ray examination of the stomach and bowels together with test meal showed a normal condition, he was put on accurate bowel management. He cleared up in a few days and was apparently cured. In a few days his pain returned, this time no more localized than before and again he was put under observation. One day his pain localized very slightly over the region of the appendix associated with a leukocyte count of 17,800. There was no temperature or any other change in symptoms. Surgery was advised and a sub-acute, thickened appendix containing fecal stones was removed and the patient is apparently cured.

There are many, many histories that could be cited that are very similar to the above case in the beginning, clinically no difference, that were put on accurate bowel management and were cured and stayed cured.

There are relatively few bowel conditions mistaken for appendix conditions in comparison to the number of bowel conditions that are mistaken for gall bladder symptoms. The reason for this is that gall bladder symptoms more closely simulate a bowel condition. If there is an intense pain in the abdomen under the right costal margin associated with jaundice, there is very little question as to the diagnosis, even the patient himself has the diagnosis made before he comes to the physician. It is the case where the two conditions are so closely simulated that requires diagnostic ability.

One point that helps one in the diagnosis of a gall bladder condition is that the distress, of whatever varied character it may be, usually comes on in attacks whether it may be one or two a day or one or two a week. Usually the patient is free from distress between attacks while in the non-inflammatory irritation of the intestinal tract the distress is present more or less all the time.

It is with these difficult cases that do not run true to form that I wish to say a few words tonight in regard to the methods of arriving at an accurate and final diagnosis.

There are two methods that have been taken in the past and these two methods have very wrongly divided the medical profession into surgeons and medical men when we are all physicians and there should be no division as far as diagnosis is concerned.

In the past a great deal of surgery has been done only on the diagnosis of a right-sided abdominal pain making it an exploratory appendix or gall bladder. This, needless to say, has given surgery a wrong place in the minds of most laymen and some physicians because the larger percentage of these abdominal distresses, as mentioned above, are due to non-inflammatory irritation of the intestinal tract and the removal of the appendix or gall bladder or operating for subsequent adhesions will have no effect on the non-inflammatory irritation.

An equally deplorable condition has the so-called medical man brought upon himself when he has accepted most all of these cases of abdominal distress as non-inflammatory intestinal conditions and has treated them on bowel management, for many of these have resulted in a subsequent ruptured appendix, acute intestinal obstruction, acute cholelithiasis or perforated gastric ulcer, subjecting the patient to the far greater risk of an emergency operation.

Can we not meet on a common ground and each one be sane in his views of the two ways of arriving at a final diagnosis?

In every case of this varied abdominal symptomatology as given above, we should keep all of these possibilities in mind from the beginning to the end of the diagnosis. It would seem that the most logical way to handle these indefinite abdominal cases would be to do the thing that will cause the least risk to the life of the patient. Are we not endangering the life of the patient to a certain extent, small, in most Clinics, it is true, every time we submit them to an operation, and is there any one of us who would want an operation performed on him unless he knew it was the best that could be done?

When, after as accurate a diagnosis as can be made from your history, physical examination and laboratory and x-ray examination, the case is still doubtful, in view of the fact that the largest proportion of these cases are a result of non-inflammatory irritations to the intestinal tract, why not place these patients on strict bowel management and under close observation, remembering at all times the possibilities of an inflammatory basis for this distress and advising surgery if there is any logical reason for diagnosing a surgical condition.

With the handling of the cases in this way, the number of exploratory laparotomies will be

greatly reduced and many patients will be saved from a needless appendectomy or a cholecystectomy and will be cured without being submitted to the risk of an operation.

In conclusion:

1. Three main causes for the non-inflammatory irritations to the intestinal tract.
   a. Nervous system irritation.
   b. Mechanical irritation.
      Cathartics and large enemas.
   c. Fermentative irritation.
2. The symptoms of non-inflammatory irritations to the intestinal tract are very closely simulated by symptoms on an inflammatory basis from the appendix and gall bladder.
3. In doubtful cases, as to the correct diagnosis, we suggest placing the patients on strict bowel management and keeping them under observation closely, remembering at all times the possibility of an inflammatory basis that may demand surgery.

COLITIS

FREDERICK G. DYAS, M. D., F. A. C. S.

CHICAGO

This condition has usually been discussed from the standpoint of the internist and is divided into simple catarrhal, phlegmonous and suppurative forms. The acute enterocolitis described in text-books of internal medicine, in which the lymph follicles of the ileum and colon are chiefly involved may bear the same relation to chronic appendicitis as "inflammation of the bowels" formerly did to suppurative appendicitis.

Diphtheritic or croupous enterocolitis may occur in the course of the acute infectious diseases, as a terminal condition in Bright's disease, cirrhosis of the liver and cancer, and as a result of inorganic poisons, such as mercury, lead and arsenic.

Phlegmonous ulceration of the bowel is very rare. Ulcerative enterocolitis occurs in acute infectious diseases and in cachexias in the form of stercoral ulcers, in which the lesion is the result of pressure necrosis, and, finally, as ulceration accompanied by diarrhea in which large areas of mucosa may undergo necrosis. Perforation or cicatricial contraction may result. However, it may be a symptom rather than a clinical entity. Osler notes two cases which were operated upon under the mistaken diagnosis of appendicitis. The writer has encountered numerous cases diagnosed colitis which were cured by the operative removal of the appendix.

The accompanying illustration, showing a complete obstruction of the transverse colon as it crosses the lumbar spine, is an instance of hemorrhagic ulcerative colitis resulting in a paralytic ileus. The bowel proximal to the point of stoppage contains numerous enteroliths distending the bowel and producing ulcerations at their several points of contact. This patient had been treated over a period of six months for gradually increasing hemorrhage from the bowel of unknown origin. X-ray examination with the opaque meal showed a complete stoppage at the point where the transverse colon crossed the spine forty-eight hours after ingestion of the opaque meal. On examination, masses could be felt within the abdomen terminating in the midline just above the umbilicus. There was marked tenderness and rigidity along the whole course of the colon, the leukocyte count was 18,000, and the temperature ranged from 100° to 101.5° F.

Fig. 1. Complete obstruction of transverse colon in case of ulcerative colitis resulting in paralytic ileus.

A diagnosis of ileus was made and immediate operation advised. Upon opening the abdomen the cecum and the ascending colon and the first half of the transverse colon were found to be filled with hard masses, some of which are shown in the accompanying illustration, which could be moved onward by stripping the bowel. Distal to the point at which the transverse colon passed the vertebra the bowel was flat. In various segments of the small bowel were areas in which the ileum was tape-like in appearance and then abruptly distended without the influence of any mechanical factor. Tracing the colon back to the cecum the appendix was found to be acutely inflamed, turgid and tightly bound down to the posterior aspect of the cecum. It was removed with considerable difficulty and a careful exploration of the abdomen revealed no further pathology. The abdomen was closed without drainage. Oil enemata were given and the scybalous masses were all passed within five days, accompanied by much pain and hemorrhage. They are shown in the accompanying photograph.

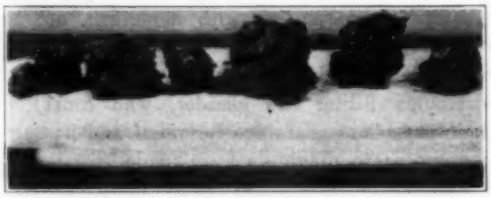

Fig. 2. Enteroliths in case of ulcerative colitis resulting in paralytic ileus.

Following the operation the patient had from fifteen to twenty-five passages of bloody serum daily. At first these were almost pure blood but each day the hemorrhagic element became less apparent and the stools took on more normal characteristics. At the end of three weeks there was no further blood to be found in the passages, and the patient had put on fifteen pounds in weight.

The paralytic ileus just described is exactly comparable to the vesical paralysis observed in cases of pelvic peritonitis involving the wall of the urinary bladder. In one case a boy was being catheterized because of his inability to empty the bladder. Examination disclosed a periappendiceal abscess in contact with the bladder wall. All the bladder symptoms subsided upon draining the abscess and removing the appendix.

In another case a young man had suffered for three years from attacks of acute abdominal pain accompanied by elevation of temperature, leukocytosis, and tenderness and rigidity in the region of the appendix. He was treated for colitis but the attacks continued. In the absence of his physician I saw him in an attack and was told that it was exactly similar to previous attacks, and that his physician had told him that it was merely a colitis and would not be benefited by operation. It was argued, however, that in the absence of the discharge of mucous casts from the bowel there must be some cause for the symptoms already outlined. An exploratory laparotomy was done and a chronically inflamed subacute appendix was removed. Following this the patient had had no further attacks of colitis. It is the belief of the writer that even those cases of so-called mucous colitis have an infective origin. In many cases it is due to the periodic discharge of the infective contents of a chronically inflamed appendix being thrown into the colon. Various writers have described a mucous colitis caused by a disturbance of the nervous system. It is difficult to see how the large casts of the lumen of the colon which are thrown off in the so-called mucous colitis could be caused by a disturbance of the nervous system. It is believed that where a careful search is made for some irritating factor acting directly upon the sensitive mucosa of the colon that the true source of the colitis may frequently be found.

Intermittent constipation and diarrhea, that is colitis, is frequently observed in chronic appendicitis. The colitis is due to the accumulation of the products of infection in the appendix suddenly thrown into contact with the mucosa of the colon, when the pressure within the appendix is built up to a point which forces the valve of Gerlach. This release of the contents of the appendix is coincident with the disappearance of the classic symptoms of appendicitis and the onset of a colitis. It is, therefore, believed that every case of colitis should be considered from the standpoint of its etiology rather than as a pathological state *per se*.

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SOME MAJOR UROLOGIC CONSIDERATIONS*

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A discussion of major urologic problems involves *ipso facto* considerations of minor details, since in dealing with these problems we are confronted with the issue, Can details be overlooked without at times enmeshing us in serious traits? I may be pardoned, then, for including in this paper details which often assume major consequences if overlooked or neglected.

First, we shall consider the problems of the patient, his signs and symptoms, which will include for the sake of completeness such findings as may be accidentally discovered in the course of a general examination, and of which there is no actual complaint.

Hematuria. The presence of blood in the urine may be either gross or microscopic. In either event it may portend a serious condition. It always requires a search for the cause. Upon an early recognition of the cause and source may depend a life.

Hematuria is present in about 25 per cent. of urogenital diseases. According to Chute, about 64 per cent. of hematurias are attributable to new growths. Renal bleeding, aside from the passage of instruments, constitutes about 40 per cent. of genito-urinary tract hematuria. In this category is placed essential hematuria, which still remains a puzzle. Israel in 1901 contended that in most of his cases of nephralgie hematurique organic changes in the kidney or capsule or abnormal mobility were detected. Hunner discovered ureteral stricture in 13 of his cases. Renal and pelvic tumors exhibit hematuria in 70 per cent. of cases, and perhaps at some time or other in all cases. Carcinoma of this organ bleeds in 68 per cent., hypernephroma in 40 per cent., polycystic kidney 40 per cent., calculi in 40 per cent., tuberculosis in 32 per cent. Other causes are displacements and focal infections.

According to statistics compiled by Thomas, hematuria with its source in the bladder constitutes 50 per cent of urogenital bleeding, and in this list is included: 1,. blood dyscrasias; 2, trauma (rupture and wounds); 3, congestion due to varicosities and urinary retention as a result of cord lesions and obstruction; 4, maliformations such as diverticula and regurgitant ureter; 5, calculi; 6, foreign bodies; 7, inflammations, including the infectious fevers, parasites (malarial, filarial), encrusted cystitis, ulcers; 8, tuberculosis; 9, syphilis, and finally 10, tumors, both benign and malignant.

The prostate, seminal vesicles and urethra contribute their share of hematuria. Prostatic hypertrophy, benign and malignant, according to various experiences, bleed in 11 to 50 per cent. of cases. Prostatic calculi may provoke hemorrhage and small growths in the prostatic urethra likewise may bleed. The infections of the urethra, prostate and vesicles, specific or non-specific, and tuberculosis of the latter two organs, of course, serve as etiological factors.

No discussion of hematuria is complete that does not include a warning to the physician consulted by a patient with hematuria not to resort to palliative methods or procrastinating technic. Recently I have seen three cases of carcinoma filling the bladder, who consulted their physicians years ago for relief and no suggestions as to diagnosis were made.

Frequency, Dysuria and Pain. Frequency and dysuria as subjective symptoms of urogenital disease are significant in that the patient will not be satisfied until relieved. This therefore entails a thorough search of the cause, and usually if treatment is not directed at the cause, relief is not acquired. Briefly these two symptoms can be attributed to disturbances of the lower and upper urogenital tract and adnexa.

We are all familiar with the fact that pregnancy, pelvic peritonitis, tumors of pelvic organs, hemorrhoids, etc., may cause either or both the symptoms. Inflammations acute or chronic of urethra, prostate, vesicles and growths along the urethra, in the prostate, vesicles and bladder will of course create these at times distressing symptoms. These conditions are usually thought of and by investigation a diagnosis may be usually successfully determined. But the important thing about frequency and dysuria is that in disease of the kidney and ureter they may be our sole clew and guide as to the underlying cause. Consider that tuberculosis of the kidney, renal and ureteral calculi, renal and ureteral tumors, and ureteral strictures often have as their only or initial symptoms, frequency and dysuria, and we are forcibly concerned with the

*Read before the South Chicago Branch of the Chicago Medical Society, February 24, 1925.)

fact that these symptoms bear investigation and should not be merely ameliorated by sedatives or narcotics or diuretics.

About the most troublesome and at least not uncommon complaint of patients is backache or "kidney pain." Urologists have a great deal of respect for this ailment. What has been frequently treated for lumbago with coal tar medicaments, diuretics, etc., have been often found to be renal tumor, tuberculosis, calculus, pelvic or ureteral tumor or calculus, ureteral strictures. Under the heading of pain, it goes without saying that colicky attacks are investigated generally pretty thoroughly.

We enumerated merely possible causes for renal colics, as stone, passage of tumor tissue, blood clots, movable kidney, ureteral kinks and strictures. And again so-called sciatica pains may in reality be infiltrating carcinoma of the prostate which involves the sacral plexus.

DIAGNOSTIC CONSIDERATIONS

Cystoscopy. In no branch of medicine have more remarkable strides been made since the discovery of the cystoscope by Nitsche. It placed urology on a high plane and the crest is not yet. What the stethoscope is to the internist, so is the cystoscope to the urologist. It has been not only instrumental in saving life by the possibility of early diagnosis of such lesions as carcinoma and tuberculosis of the urogenital tract, but has been of vast importance in eliminating the necessity of many operations for tumor of the bladder, and for stones in the urinary tract, as will be brought out later. It is to our everlasting discredit that so many hopeless cases and fatalities must be directly attributed to the failure to employ this wonderful instrument. Comparisons to the use of the stethoscope are invidious to the internist, who is never without his trusty tool.

In the bladder one can determine first of all bladder tumors and even their type whether they are malignant or benign, pedunculated or sessile and infiltrating. In the pedunculated type or those near the internal urethral orifice one can account for sudden interferences during micturition by the obstructing mass and likewise frequencies and dysurias for the same reason. Bladder stones are of course easily visible and the symptoms traceable to them can then be appropriately treated. Trigonitis, cystitis of all types with or without encrustations thus can be diagnosed if the clinical symptoms are doubtful. Diverticula of the bladder can be seen and should be looked for in cases of persistent purulent infections, residuals, hematuria, frequency. At times a stone lodged in a diverticulum causes great distress. Vesical neck contractures, strictures and prostatic bars can be seen, and we are coming to realize that these lesions are responsible for a great many cases of retention, frequency and dysuria. Prostatic enlargements are also thus diagnosed, when it can be seen that the smooth circular internal orifice is replaced by irregularities and angularities due to enlarged lateral and median lobes. Ulcers, the interstitial type of Hunner (elusive ulcer), tuberculosis and tubercles can be so recognized.

Kidney conditions reflect their images, detectable by simple cystoscopy; for example, ulcers and tubercles around the orifice are conclusive evidence of disease in the kidney; a projecting growth from the orifice is exceedingly suspicious of a like growth in the pelvis of the kidney. An unusual elevation in the vesical portion of the ureter presages the presence of a stone at this point. And of course purulent or bloody urine may be seen spurting from the ureteral orifice to localize the kidney involved.

Cystoendoscopy visualizes the whole prostatic urethra and enables the detection of pathology in this location. The technic is similar to cystoscopy. It is especially valuable for determining prostatic hypertrophy when the mass does not encroach much on the bladder and to show the bars, the submucus gland enlargements and contractures.

X-Ray. As a diagnostic aid in urology the x-ray is an indispensable adjunct. With proper preliminary preparation and good technic the kidneys can be usually outlined. An enlargement of the kidney enlightens us as to possible new growth, infection or obstruction below the level of the kidney pelvis. Malformations and displacements may be thus detected. An abnormality visualized by means of the x-ray may put one on the right track for further extensive investigations especially in the absence of sufficient symptoms. Regarding calculi we can expect a shadow in about 90 per cent of cases. The phosphate, oxalate and carbonate stones are visible, whereas the urate and uric acid stones can at times be made so.

While on the subject of stone shadows, it is worth while emphasizing the importance of localizing the concretion. Phleboliths and calcified glands, bowel concretions, gall stones should be excluded. This can be readily done by the use of the shadowgraph ureteral catheter which may be halted by a ureteral stone or pass it in the same plane as the stone. A picture showing a stone possibly in the bladder must certainly have a cystoscopy for verification. Stones that do not show on the film may be made visible by the injection of shadowgraph solution through the ureteral catheter, an item that still further reduces the chances of missing concretions by x-ray.

The pyelo-ureterogram, which means a picture of the ureter and pelvis made visible by the injection through a catheter placed low in the ureter of some opaque fluid such as sodium bromide 25 per cent, sodium iodide 15 per cent or 12 per cent sodium mercuric iodide enables us to determine as before mentioned, calculi, kinks and strictures of the ureter, tumors of the kidney and pelvis as evidenced by filling defects of the pelvis, hydroureter and hydronephrosis due to obstructions. We must first of all be acquainted with the normal to recognize the abnormal. We must first be cognizant of the fact that the normal pyelogram exhibits three major calyces, superior, middle and inferior, with various branches; that the papillae are concave and regular. We must also recall in the determination of ureteral strictures the normal peristalsis of the ureters which may easily be confused with strictures at the portion exhibiting the contraction. This has given rise to dissensions from Hunner's opinions. It is difficult to accept the frequency of such findings, and yet more and more of us are falling into line with Hunner. We must remember the three natural narrowings of the ureter, namely the vesical portion, that part that crosses the iliac vessels at the pelvic brim and the pelvi ureteral junction.

Blood Chemistry. We can briefly review the value of blood chemistry as a diagnostic aid. We have come to rely on it more as a method of evaluation of the patient as a surgical risk. Take for example in cases of prostatectomy or nephrectomy for tuberculosis or tumor when the blood registers urea nitrogen over 50 or creatinin over 3 mgm per 100 C. C., we have no right to resort to surgery except in unusual cases since renal failure is inevitable. Instead in prostatectomy by means to be mentioned a conditioning of the patient is usually successful in enhancing the kidney function and diminishing the risk. In tuberculous kidney or calculous nephritis with high blood nitrogen retention nephrectomy is unwarranted since the remaining kidney is certainly not sufficiently compensating. Blood chemistry is also an aid in determining congenital cystic kidney which is bilateral, especially when this is considered in conjunction with two large kidneys and filling defects in pyelograms. Normal figures are in milligrams per 100 c.c. of blood urea nitrogen 12-15, non-protein 25-35, creatinine 1-2.

Urinalysis. The value of urine examinations is apparent to all. The principal features for diagnosis are the detection of hematuria already elaborated, organisms as the tubercle bacilli and other invaders as colon bacilli in infections, excessive crystals as oxalates, carbonates, phosphates and urates which may predicate calculi, pieces of tumor tissue, and finally functional estimations as the phthalein test. In the latter estimation the kidney function is determined both as to rapidity of action and quality, and quantity of elimination. Particularly do we refer to the appearance time of the dye and the quantity eliminated after a lapse of certain intervals. The technic I shall not describe.

Segregation of the urine by ureteral catheter gives relative functions of the two kidneys. I shall merely interpose a warning as to the proper method of collecting the urine from both sides to eliminate the possibility of error. A large catheter completely blocking the lumen of the ureter should be on one side, and the urine from the opposite kidney should be obtained through the sheath of the cystoscope.

CONSIDERATIONS OF TREATMENT

We now come to some considerations of the treatment of urogenital conditions. Many minor treatments can be instituted by anesthetizing the urethra or bladder locally with procain 1 to 4 per cent. The most pleasing thing however is the generally successful employment of epidural or caudal and sacral anesthesia and when indicated in suprapubic work, field bloc. Under this system the sensitive bladder vanishes. Prostatectomies, suprapubic or perineal, bladder tumor electrocoagulations,

lithotomies, etc., can readily be accomplished. It is the most noteworthy item in the reduction of prostatectomy mortality, since immediately following the operation liquids can be forced, and post-operative shock is greatly minimized. The technic is comparatively simple. The sacral hiatus is located by palpating the sacral cornua. A spinal puncture needle is directed perpendicularly through the filum terminale and after piercing this ligament the needle is directed upward in the sacral canal for a distance of about 4 or 5 cm. The obturator is withdrawn to ascertain the presence of blood or spinal fluid, and if either appears the needle is withdrawn somewhat or the operation postponed. As the dura terminates at the 2d sacral the spinal canal is not entered.

In order to facilitate the procedure the patient is placed on his abdomen with the suprapubic region resting on a sand bag. After the puncture he is placed on his back and twenty minutes allowed to elapse before operating. About 30 to 70 c.c. of 1 per cent procain are usually sufficient. This diffuses about the sacral nerve roots before they emerge from the sacral foramina. Injection of the sacral foramina on each side in addition, insures the anesthesia.

Bladder Conditions. In bladder tumors, benign and malignant, if pedunculated and not too extensive, gratifying results are obtained by electro-coagulation through the operating cystoscope. If the condition has been recognized early and no metastases or extensions are present cure ensues. However, I wish to emphasize the fact that since all bladder papillomata are potentially malignant, subsequent periodic cystoscopies must be done to check on the patient; and in recurrences the procedure is repeated. In extensive involvement a cystotomy must be done. In any event the tumor should always be removed by electro-coagulation.

Small bladder stones can be removed through the cystoscope with the forceps and larger soft stones can be crushed. Sometimes a stone is visible in the vesical portion of the ureter and is here impacted. The proper procedure here is to perform a uretero lithotomy with the cystoscopic scissors through the cystoscope, when the stone either drops into the bladder or can be removed with the cystoscopic forceps. Large stones must necessarily be removed through a cystotomy wound. Under the heading of stone perhaps should be included cases of encrusted cystitis wherein there is a deposition of phosphates sometimes very extensive over an ulcerated or inflamed bladder mucosa of long standing. This encrustation can be likewise removed through the cystoscope. The only difficulty rests with the recognition of this condition which is at times confused with new growths or indeed may be deposited on new growths.

Bladder ulcers, particularly the elusive ulcer of Hunner, and the tuberculous ulcer are the bane of existence for the afflicted. Hunner's ulcer is usually single, interstitial, involving all the coats of the bladder, and gives rise to great bladder distress out of all proportion to the size of the lesion. According to Hunner it is a focal infection secondary to bad teeth and tonsils, etc. Besides clearing up the atrium of infection it may be necessary to excise the ulcer. In tuberculous ulcers usually secondary to renal tuberculosis or of the lower genital tract, I have recently had the gratifying experience of obtaining relief for vesical tenesmus, frequency and dysuria by fulgurating the ulcers. As a rule relief may be had by the instillation of 15 per cent iodoform emulsion in olive oil. Of course, cure cannot be obtained without proper attention to the kidney tuberculosis.

Ureteral Conditions. Stricture of the ureter is at present a moot point of discussion. Following the leadership and sponsorship of Hunner, we hear of more and more urologists falling into line. Like the Hunner ulcer, it presumably results from infections of the teeth, tonsils, etc., and of great interest the frequency of the trouble in that portion of the ureter which traverses the vesicles and prostate would promote the *a priori* inference of a vesiculitis and prostatitis with concomitant ureteritis. It is as a rule bilateral. The symptoms are one or all of the following: Painful frequent urination, colicky pain, hematuria, etc. Whether or not we accept Hunner's dicta in toto, it is nevertheless true, that in such cases by dilatation of the ureter with the Walther bulbs or Garceau catheters many cases of relief and cure have been obtained.

It is a remarkable tribute to the urological specialty that about three-fourths of cases of ureteral calculi can be removed without operation. Operation is only indicated in cases of large impacted stones with progressive renal function

retrogression, or in cases of manipulatory failure. Given a case of ureteral stone, the ureter is catheterized to the obstruction and cocain or procain deposited in the ureter. It may then be possible to get past the obstruction especially with the aid of a little petrolatum dropped in the ureter. The catheter is permitted to remain in the ureter 24 hours, which procedure greatly relaxes the lumen and then a larger catheter is reinserted for 24 hours. Liquids are forced by mouth. The possibility of recurrences and bilateral involvements perhaps exists in about 10 pe rcent. of cases. Foci of infections should be cleared up and quantities of distilled water should be taken for some time.

Infections of the ureters and pelvis, such as pyelitis and ureteritis may usually be treated by large fluid intake with either alkanization or acidulation of the urine by the usual means, depending on the flora of bacteria. In persistent cases it may be necessary to perform ureteral catheterization which acts twofold, improving drainage and serving as a means of irrigating the pelvis with 1 per cent. silver nitrate or mercurochrome. At times I have had excellent results with intravenous mercurochrome.

Kidney Conditions. Success in the management of renal and pelvi-renal carcinoma of course depends on the early recognition as previously mentioned. As a rule they are so far advanced as to give a bad prognosis. Congenital cystic kidney which is a bilateral involvement cannot be helped. There may be sufficient good renal tissue to function for a long time.

In renal stones the procedure depends upon the extent of destruction and the involvement of both sides. In the latter case with good kidney function no infection and no symptoms it might be advisable to let it alone and watch the patient. Otherwise, it would be better to remove the stone from the healthier kidney to restore its function as far as possible, then at a later date the poorer kidney would be taken care of. In case of stone in one kidney and ureteral stone on opposite side, the ureteral stone should be cared for first. These rules are of course arbitrary and may have to be modified depending on circumstances, such as colic, infection, etc.

A few words about tuberculosis of the kidney. According to Kroenlein and Israel 30 per cent of all surgical conditions of the kidney represents tuberculosis. Lorrison Brown has shown that tubercle bacilli may pass through healthy kidneys. Kuster states that 10 per cent of patients dying of tuberculosis exhibit kidney involvement. In 20,000 autopsies Kapsammer found 191 cases of renal tuberculosis, 67 of which were unilateral and 124 bilateral. Of the bilateral cases, the greater proportion showed old processes in one and early lesions in the other, indicative of an early unilateral involvement. Legueu, Albarran, Israel and Casper estimate 15 per cent of chronic or surgical kidneys as bilateral. Braasch estimates that 30 per cent of the cases show pulmonary tuberculosis.

In tuberculosis of the kidney frequency of urination is the initial symptom in 85 per cent of cases. Kidney pain is present in 20 per cent, hematuria in 38 per cent, painful urination, especially terminal, in 48 per cent. The immediate mortality rate of nephrectomy for this condition is about 7-10 per cent, and the late mortality rate is 20 per cent in five years, bilateral 75 per cent in a year. A positive cure is obtained in 60-70 per cent of unilateral cases.

Martin of Battle Creek Sanitarium reports excellent results with the following conservative treatment. He suggests a balanced ration affording maximum nourishment yet imposing minimum work of elimination by the kidneys, by omitting excess animal protein and supplying vegetable proteins. He supplies foods rich in calcium and iron to hasten calcification and clotting in hematuria. He employs with some success heliotherapy, i. e., direct sunlight, or quartz light to tanning before and after operation, and also medical diathermy. It may be advisable to fulgurate the bladder ulcers as previously mentioned.

Prostatic enlargement, a hyperplasia and hypertrophy, may make itself known to the patient in late middle age, with symptoms of frequent urination especially nocturnal with the feeling of incomplete evacuation of the bladder. The symptoms are generally known although not always recognized, and need no discussion here. The chief consideration involved is the proper treatment which includes preoperative, operative and post-operative care. It may as well be understood that one of the chief factors in the lowering of the mortality rate of prostatectomy lies in the preoperative treatment, which means essentially a conditioning of the patient. Elim-

ination through both kidneys and bowels should be enhanced, liquids in large amounts, irrigation of an infected bladder, good nourishing diet, rest in the debilitated individual, moderate exercise in the flabby, etc. Conditioning of the patient includes gradual evacuation of the residual urine; the greater the residual the more gradual the evacuation or as we term it decompression. There are some who still ignore proper decompression and perform the first step of a suprapubic without having first done the preliminary drainage, but enough patients succumb from the first step to impress one with the necessity of actually employing the three step procedure. This means the gradual decompression of the bladder by an indwelling catheter or repeated catheterizations. This process takes about a week. Then the cystotomy is done and this drainage should be maintained until the kidney function is good, as shown by both phthalein and blood chemistry tests, when the third step of enucleation is performed.

Within the past three or four years there seems to be a trend toward perineal prostatectomy. The dogmatic technic of Young unaltered for years has undergone helpful changes, and these are directed toward the preservation of the external sphincter with the view of eliminating the sequel of incontinence. In Geraghty's hands and those who have followed his technic the results have been truly wonderful. It still remains a difficult operation, but the mortality rate has been so lowered and results so splendid that we must all admit that after all the patient has some rights. To the operator the suprapubic route is the safer and easier, to the patient the perineal is preferable, since recovery is surer and easier. I am guided by the following indications: The perineal route in cases of 1. small, fibrous prostates and those with possible cancer, 2. bad or poor surgical risks, 3. old and enfeebled men irrespective of type of hyperplasia or vesical complications; the suprapubic route in 1. good surgical risks in younger men with typically benign and intravesical prostates, 2. cases with large bladder stones or certain types of bladder diverticula provided they are good risks.

In either suprapubic or perineal routes there is an additional important safety factor, namely the employment of caudal anesthesia as described. In the perineal that usually suffices, while in the suprapubic abdominal bloc is resorted to in addition. The advantages of this type of anesthesia are evident. The effect on the kidneys or heart and anesthetic shock are absent. Fluids, the all-important medicament, can be instituted at once. I am employing this type of anesthesia in all perineal and bladder work, and it grants me ease and time in operative work that is not attainable with general anesthetics.

Post-operatively, aside from the regular care, dilatation by sounds in some cases, particularly those with tight vesicle necks or urethral strictures must be resorted to for variable lengths of time, or relief of symptoms will be temporary.

In conclusion there is a tendency now to utilize the one step suprapubic prostatectomy in favorable cases. This permits a visualization of the field of operation as is attained in the perineal method. Of course, bladder decompression must be employed previously. Hemorrhage can thus be better controlled, although no better than in the perineal type.

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POST TRAUMATIC MENTAL DISORDER

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In dealing with the mental complications of physical injury several related problems are involved:

(a) Those of mental states directly due to trauma of the head which has produced brain pathology.

(b) Abnormal mental states seemingly precipitated by head trauma but probably without definite traumatic pathology, the result of mental rather than physical shock and of endogenous rather than exogenous origin such as dementia praecox, manic-depressive, etc.

(c) Mental states apparently precipitated by trauma of the head but based upon already existing pathology such as general paralysis of the insane, arteriosclerosis, senile change, etc.

(d) And finally, disorders apparently closely associated with trauma of other parts of the body than the head.

The following classification offered by Adolf Meyer[1] some years ago is still a good one:

1. Direct post traumatic delirium:
   a. Reaction with infection.

b. After operations and injuries.
c. Of slow resolution from coma.
d. Associated with confabulations.

2. Post traumatic constitution:
   a. With increased reaction to alcoholic infections, disease etc.
   b. Vaso-motor neuroses.
   c. Explosive diathesis.
   d. Hysteroid or epileptoid.
   e. Paranoid reactions.
3. Post traumatic mental defects:
   a. With aphasia.
   b. Secondary deterioration in connection with epilepsy.
   c. Terminal deterioration.
4. Where trauma is a mere contributing or participating factor.
5. Where injury does not affect the head, there is no noteworthy infection and the mental disorder is endogenous.

There is little need of dwelling upon the febrile reactions, due to infections. Individuals vary in mental as well as physical reaction to wound infection. Everything depends upon the stability of the patient's nervous system, upon his heredity and habits. Everyone has a breaking point, the only difference being that some break under less strain than others.

Likewise, concerning the delirium following operations or injuries without infection, there is little to say. Here again we have to deal with the personal equation plus the effects of hemorrhage, anesthesia and disturbances of circulation, either local or general. These deliria, generally of short duration, may be disastrous in their results if the patient is not guarded against self injury. The physician or surgeon must keep in mind the fact that the so-called normal individual under physical strain may break mentally when this is least expected.

The mental phenomena immediately following gross injury to the skull may be summed up in the term *unconsciousness.* The further course of the mental disturbances in these cases depends upon the amount of hemorrhage and laceration of brain tissue and upon the extent of the secondary infection which is almost inevitable where the dura is penetrated. The extent of the bony defect is not of great importance so far as life is concerned; in fact, the resultant decompression may be of decided advantage in certain cases.

1. American Journal of Insanity, lx, 351.

Cortical tissue itself may be lost in considerable quantities without producing mental disorder. Neurologically speaking, the frontal lobes are silent areas but epilepsy or the traumatic constitution, especially the former, may follow injury in this region when it results in bony defects with adhesions. Berger[2] believes that injury of the left hemisphere is more apt to present mental symptoms, especially that of the frontal lobes, and Meyer feels that wounds of the vertex are prone to produce bad results. Forster[3] refers to Allers as connecting muscle rigidities and loss of initiative with frontal lesions. Basal fractures are prone to cause long-drawn-out delirious episodes. Forster also agrees with Kocher, Breslaner and Reichardt that unconsciousness is associated with injury of the medulla.

It is penetration of the dura with consequent infection that so often spells disaster by way of meningitis and brain abscess. The hospital mortality of penetrating wounds in the British army service in the late war, according to G. Jefferson,[4] was 37.6 per cent., due always, he states, to infection. *Often this infection is surprisingly slow in producing symptoms,* a fact to be seriously considered when dismissing a head case from observation. The mental picture is usually that of a rapidly developing somnolence, with possibly some delirium, progressive to stupor. The physical signs are those of pressure, among which the disk findings are most important. Spinal puncture is diagnostically important. Upon the other hand, serous meningitis at times gives a papillary edema and increased fluid pressure up to 480 mm. of water even in cases of from six months to a year's standing (M. Berger). Here spinal or cistern puncture may relieve pressure and promote recovery.

The ordinary case of head injury is most apt to be a concussion with or without depressed fracture or with no demonstrable fracture at all. These are the cases, though the percentage is small, that furnish us with the majority of the frankly traumatic insanities. The following case (seen through the courtesy of the State Psychopathic Hospital, Ann Arbor, Michigan) exemplifies the type quite well:

Richard DeF. Admitted Jan. 25, 1922, age 29, married, no history save that he was said to have been injured over the left frontal region January 9 in an

2. Trauma and Psychosis, 1915.
3. Monatschft f. Psych. u. Neur.—Berlin, Aug. 1919.
4. Brit. Journal, Surgery, Vol. VII.

automobile accident; was taken to the University Hospital and transferred from there without operation.

Patient, when seen in bed, January 28, 1922, was a well nourished man with some scattering boils over the trunk. There was a ptosis of left eye, probably due to scar of injury. Pupils were equal and somewhat sluggish in reaction. He was rather unsteady upon his feet and presented a well marked Gordon-Oppenheim on left side, no Babinski, interesting in view of the fact that his direct injury was upon the left side of head, thus raising the question of contre coup. He lay quietly in bed without attempting to get up and was untidy in habits; responded to questions but showed little spontaneity. No speech defect. Impressibility proved to be almost nil, did not remember name, date or place after a few minutes. Apparently knew the name of his wife and children and his own age but very little more could be obtained from him.

To illustrate his unclearness, as he lay in bed he suddenly asked about a "picture" on the wall in an adjoining room, then said it had been looking like a brown jug to him for the last four days. The object was a clock about 30 feet away. The examiner gave patient his name and occupation many times but he could not remember it and persisted in calling him "Gauze" and thought he might be a minister. He saw a patient leaving his bed to go to an adjoining room and remarked there were lot of men working in Michigan. He remembered nothing about his accident and evidently worried about nothing; did not even know he had been hurt. His mood at times was facetious.

He watched the adjoining room where there are several beds and other patients, but did not seem to comprehend the nature of what was going on there, remarking "If I saw that young doctor now I would have him mix me up a drink." He is very possibly an alcoholic to judge from occasional references to drinking.

His attempts, under stimulation, to read a paper were interesting. He seemed to see and yet not grasp the meaning of words, would read one or two in a headline and then stop and seem not to comprehend the meaning. He read the figures 1,113,750 first as 1,113,550, then 1,113,150, then 11,000, then 113,750. When asked about the picture of a man said he was not acquainted with him and made no effort to read the name below. Later on he could not be persuaded to read more than a word at a time. To dictation he spelled house, cat, etc. He readily accepted suggestions concerning the nature of his activities in the hospital, but did not confabulate spontaneously.

All in all, the syndome would seem to be one of the post traumatic clouding of consciousness with something approaching a Korsakoff syndrome, the latter possibly conditioned in part at least by chronic alcoholism, upon the extent of which the prognosis would be somewhat dependent. This patient in the course of a few weeks recovered sufficiently to go home.

The following interesting case illustrates very well the later course of a similar case though too little is known about the more acute stage:

Wm. S. Admitted June 3, 1920, 49 years of age, white, laborer, married. Family history negative. Moderate user of alcohol in the past.

April 1, 1920, he was struck upon the head by the open door of a passing truck and was unconscious at the Cook County Hospital for six (?) days with skull fracture. Two weeks later right eye became inflamed and later mastoiditis developed. Remained in hospital seven weeks and became expansive—thought himself an officer, doctor, etc., had much money, government was after him, etc. Physical examination when admitted showed patient to be poorly nourished, right eye enucleated "on account of inflammation," scar of mastoid operation. Pupils were negative—suggestion of right facial paralysis. He had been at home for two weeks before commitment. Mastoid operation at Eye & Ear Infirmary shortly before admission. Was not irritable nor forgetful.

When examined, June 17, he told a long story about an air plane trip which he had taken several weeks before he was hurt. The manner of telling suggested confabulation. "A gentleman named L. came to me on Wabash Avenue, took me down to Grant Park two or three weeks before I was hurt about four months ago. (Patient was injured about two months before his admission.) I had known this man for five years. I had met him there on the street and we talked about how we were getting along and the times in general. He asked me where I was working. He finally asked me if I had nerve enough to go up in the machine with him. He placed me in the machine and placed the two safety belts around me and away we went. We went over the Field Museum and out over the lake and he leaped up pretty well and then came back down again. When we landed he said he had to catch a train to go away. I walked as far as Randolph and Michigan with him and bid him goodbye. I then caught the Indiana car to go home and that is the last time I saw him."

He answered questions freely. Memory seemed to be good. Did not recall how he was hurt, but remembered apparently up to the moment it occurred. Said he came to about a week later. Was in the County Hospital 7 weeks and 4 days—approximately correct—though he probably fused this experience to some extent with that in the Eye and Ear Infirmary. He felt all right at this time—*no headaches, dizziness.* His stories, when repeated from time to time, remained practically the same. At staff meeting he was quiet and orderly, claimed that a friend was going to buy a farm near the city so that he might work on it. This farm would be about 250 acres. His friend was a special policeman in a bank. There was an entire failure to connect the sum involved in such a purchase with the friend's ability to pay.

It was remarked that the patient seemed to feel very well and was anxious at times to tell how good he felt. He seemed not to realize that the sight of

his right eye had been destroyed, certainly was not at all depressed by the fact. His wife was not anxious to remove him and a friend who came to visit him seemed to think that he was not quite himself.

The remainder of the history is brief. The patient was paroled to his wife about a month later and returned after two months (Sept. 20, 1920) in poor condition with a black eye which he stated was caused by being struck by a negro. He died three weeks later, Oct. 13, 1920, quite suddenly following a convulsion. A complete physical examination was not made at the time of his re-admission, which is most unfortunate. Spinal fluid was negative. The findings of the coroner's physician were "brownish degenerated areas on surface of temporal and frontal lobes of brain, showing old hemorrhage and pus over the right parietal region, in the fourth venticle, later ventricle and over the base."

This patient undoubtedly had a delirious upset following his head injury and became clear without correcting his dream experience of the airplane, the farm, etc., thus indicating decidedly weakened judgment, illustrated very well, too, by his persistence in the idea of the 250-acre farm near Chicago to be given him by his policeman friend. When told this land would cost from $600 to $800 an acre he made no comment, seeming not at all to recognize the absurdity of the situation. Of particular interest is the fact that he did not complain of the head symptoms so common in these cases, especially in view of the post-mortem findings and the negative spinal fluid. The case also illustrates extremely well the latency of symptoms during the development of extensive pathology.

There is nothing pathognomonic in the symptomatology of many of these patients. Everything depends upon the history of injury or direct evidence of it and even then we can be deceived inasmuch as the head may present evidences of a trauma sustained subsequent to the development of the psychosis. However, in any large group of bona fide traumatic case histories the following items will stand out more or less prominently:

1. A history of head trauma.
2. A period of unconsciousness or semiconsciousness (though Berger found in 53 cases that 15 per cent. did not give such a history).
3. Followed by more or less delirium, confusion and irrelevant speech.
4. Amnesia and a tendency to fill in memory gaps with confabulations—Korsakoff's syndrome.
5. Periodic and rather sudden variations of mood. Recurrent confusion with fear reaction and violence.
6. Possibly epileptiform seizures.
7. Complaints of head sensations, such as headaches, dizziness, foreign body.
8. Neurasthenic, fatigability and hypochondria.

Accompanying these mental symptoms, none of which are pathognomonic in themselves, there may be some difference in the size and reaction of the pupils, deafness, Rombergism, speech defect, altered reflexes, etc. Forster[5] and Berger both lay stress upon increased spinal fluid pressure. The benzedine test for occult blood may be positive long after the accident.[6] Such physical signs naturally assist greatly in establishing a diagnosis, especially in the presence of definite evidence of old head injury or history to this effect.

After the above statement of signs and symptoms, the following case of Abe. L. is cited with some hesitation because the picture of a psychosis apparently proceeding directly out of a head injury so resembles dementia praecox as to have been thus diagnosed three times in two state hospitals in the face of the traumatic history. Hebephrenic dementia praecox, however, remits but rarely and usually with some very evident defect. This patient after psychosis lasting four years is at work and seemingly well:

A. L. Admitted to Elgin State Hospital, November 2, 1917, a Russian Jew, family history negative, age 29, married, automobile painter. July, 1916, while riding a bicycle was struck by an automobile, receiving an injury of the head. He was taken to a hospital where he recognized no one and remained there three weeks, *unconscious two weeks* (?). After that was not in normal mental health. He worked very little—"got things mixed up in his head" and "they could not keep him any place." Shortly before admission he thought he recognized other women as his wife and would try to follow women passing with baby carriages. He feared someone was going to kill him because he did so much work in the shop; was very talkative and walked about the house a great deal; never violent, memory good. Thought people were watching him.

At the time of the first state hospital examination physical examination was negative; in the mental examination he cooperated but was uninterested. Did not respond well to questions. No spontaneous stream. Said he would like to just sit in his room if the other patients would leave him alone. *He denied hallucinosis.* Orientation was questionable but thought the physician might be a doctor. General information was difficult to ascertain. Thought nothing was the

5. E. Forster: Monatschrift f. Psych. u. Neur., Berlin, Aug. 1919.
6. G. B. Hassin, verbal communication.

matter with him, that he ought to go out and get a job, but seemed little interested in his wife or children. Diagnosis hebephrenic dementia praecox.

He was re-presented June 20, 1918, with a history of untidiness, destructiveness, impulsiveness, violence and restiveness. Was constantly talking to himself, stupid and indifferent, lying in bed with his head covered and on account of the entire picture and slow progressing deterioration was again diagnosed as dementia praecox.

He was transferred to the Chicago State Hospital August, 1918, where his condition was apparently unchanged. He improved remarkably during the year 1919 to 1920, because quiet and agreeable and took charge of a linen room. He gave a good account of himself when questioned and seemed to remember all the principle facts of his life history. The diagnosis of dementia praecox was, however, again confirmed.

He was removed from the hospital the latter part of 1919, but was returned shortly after because he could not get along; was said to be quite disconnected in his speech and restless. August, 1920, he escaped, returned by himself shortly afterward, was paroled and began to work, though talk was somewhat rambling. After this he apparently got along well, though he complained some of headache. Discharged in November, condition improved. Was doing well in some factory. The examining physician stated that his reactions seemed to be superficial and he showed some "mental slowing."

The case was investigated January 10, 1922, by social service worker, who found the patient out and his wife in a hospital following delivery. He was said to be working and was well spoken of by the neighbors. Recovery is, at least socially, complete.

In general, the course of this case was that of dementia praecox, but the onset with unconsciousness following head injury, apparent absence of hallucinosis and a final symptomatic recovery are unusual features which perhaps justify the diagnosis of traumatic insanity; remembering, however, that dementia praecox itself may follow directly upon any kind of trauma, of which more later.

Next to the more or less acute traumatic psychoses the so-called traumatic constitution is most interesting. Here the mental changes are often subtle and most important for this very reason. The various types range by infinite gradations from an increased intolerance for alcohol, sun and infection, along with but slight change in personality, to the marked neuroses and paranoid developments. To this indefinite group belong those individuals who perhaps deserve our greatest pity in that the change precipitated by their accident may evidence itself merely as an exaggeration of unpleasant traits they have long possessed in the development of unusual, immoral behavior, in a loss of ambition and ability to get along, in irritating hypochondria or in behavior that suggests malingering. And, too, there must often arise a question as to the validity of assuming *post hoc propter hoc.* Perhaps the relationship of the accident and the change of personality is only coincidental after all, vide the following case:

Wm. C. Age 15, was admitted to the Elgin State Hospital December 30, 1921. Mother stated patient was bright in school, passed his examinations without difficulty, conduct good, never stole. Was struck by an auto December 13, 1920, and was unconscious for five weeks. When he regained consciousness "he could not remember." For the first two days and nights following injury he had one convulsion after the other and suffered greatly. Decompression operation was performed the day he was injured. Lost nearly a year's schooling on account of illness. School marks since accident said to be of passing grade. Began to steal after accident, took jewelry as well as money. This would happen sometimes two or three days a week then again not for several weeks. He would deny up and down that he had taken it while he had the money in his pocket and finally would confess. When asked why he stole would remark, "Oh, just because I wanted to." His memory became defective and he masturbated badly. Some days he would talk continually. While he was in the hospital it required hypodermics to keep him quiet.

The examination at time of admission showed a bony defect in the left frontal parietal region about 2 by 2½ cm. Pupils were equal but patient claimed vision is not so good as before accident. Test chart said to read 20-30 R. and 20-40 L., findings which are somewhat doubtful though the disks were perhaps a trifle paler than normal. There was some tremor of the fingers, otherwise examination was negative. Patient is still restless and talkative but well behaved, tires readily and is egocentric.

History in this case is very meagre, but the question arises as to whether accident brought to the surface a psychopathic tendency or was this merely coincidental? The boy is only 15 years old and psychopathy is very apt to first claim attention in adolescence.

The case of Charles B. is complement to the above and illustrates very nicely the development of the explosive diathesis in a boy who had at one time been in a correctional school, though possibly through no grave fault of his own, since he had no one to look after him save his grandparents. By coincidence, the physician who examined him upon admission to the state hospital had known him as a well-behaved boy in this school, a few years prior to the accident.

Charles B. Admitted to Chicago State Hospital, November 17, 1921, age 17, single, a laborer. Patient

was in an orphans' home several times for running away from his grandparents' home. Was in correctional school where he behaved himself well. Has a sister who is said to be "no good." A letter recently received states he had been a hard working farm hand for three or four years preceding trip west, on his return from which he was struck by a train which killed his brother who was with him. He became violent at the Minneapolis General hospital. Psychopathic hospital diagnosis, dementia praecox, at Minneapolis, dementia praecox or traumatic psychosis.

Physical examination upon admission showed cast upon fractured right leg and scar over left frontal parietal region, otherwise negative.

Patient became sarcastic and stubborn soon after admission. Explained in detail the accident, when he was hurt and his brother killed; was unconscious he thinks two days. Since the accident he has always felt a bit dizzy. Was returned to Chicago by the authorities of St. Paul and sent to the County Hospital. He soon got into trouble there for entering women's ward, which he states was because he had become lost while out upon the smoking porch. At the psychopathic the doctor asked him if he had ever seen a woman floating in the air or a cat hanging from a tree and for a joke he told that he had. This account was well given, but he denied the reports of violence. There was no evidence of hallucinosis or actual delusions. Case was left undiagnosed but the general impression of the medical staff seemed to be that he was of a psychopathic makeup.

In the hospital he had several attacks of explosive excitement, in which he was not violent but apparently on the verge of it. His general attitude was one of sullen martyrdom. Later he attempted to get out of a window in spite of a fracture from which the cast had recently been removed.

This boy denied his explosions and adopts a sullen attitude of injured innocence when questioned concerning them. Was his amnesia real? [And, for that matter, what do we understand by a "real" amnesia?] Or was he developing psychic epilepsy which might be inferred from his transitory periods of excitement and confusion with amnesia?

Still another case illustrates very well a combination of the explosive and paranoid types:

John P. Admitted November 11, 1919, Austrian, age 27, single, carpenter, family history negative, occasional drinker, well until accident, March, 1919, when a heavy weight fell upon his head. He became unconscious and was removed to hospital where he was operated on for depressed fracture.

The doctor who had charge of him said he made an uneventful recovery. A few small pieces of bone, however, sloughed out. Four months prior to admission several doctors testified before the industrial board that he was able to resume work. In fact, they thought he would be benefited by occupation. He endeavored at about this time to cash his pay check in a downtown bank and made some disturbances there, but was allowed to go home. A little later he went to the doctor's office for disability certificate and when this was refused attempted to assault him. He was sent to the Bridewell Hospital and later to the county jail. At the time of admission was said to be under $5,000 bonds, but the judge had recommended that he be sent to the Psychopathic Hospital.

Patient, when admitted, presented a depression over the vertex of the skull—vision in left eye poor; pupils were equal and reacted but were irregular. Tongue deviated to the right and was tremulous. There was some insteadiness of station and he limped with the left leg, but there was no Babinski.

He told his story about as contained in the above account, but said he did not remember the attack upon the doctor though he remembered going to his office. He recalled being placed under bonds and being taken to the Bridewell. Everyone was against him, two doctors, two insurance men and the police, even his lawyer. The only friend who was interested in him was shortly after shot and killed but the patient considered this merely a coincidence.

He had been troubled by severe headaches, especially while in the sun; would become dizzy and at times would feel as if something were loose in his head.

He was fully aware that his case was up for adjustment before the industrial commission. He was critical and fault-finding upon the ward, thought he would never get well if he did not get away soon, that he must be taken to a private hospital and that his stomach was out of order. General information poor, also impressibility. No hallucinations, nor real delusions. Diagnosis—traumatic constitution with a question as to whether the limp was the result of organic lesion or not. Patient was finally paroled, condition unchanged, January 15, 1920.

Paranoid developments are not an illogical development in a burdened individual who, as a result of head injury, becomes less able to carry on his work and in consequence seeks explanation for this failure outside of himself, i. e.:

Wm. N. Admitted October 22, 1920, age 53, married, carpenter; a great aunt said to have been insane. Patient is an abstract specialist. No epilepsy in the family. Twice married, divorced first wife "because she was hard to get along with." Drank quite freely years ago, but little for the last five or six years. Wife stated that about eight months after he was slugged in a race riot he became irritable, complained of severe headaches night and day. He improved at times, but quit steady work some six months prior to admission; worked half days for a time; developed a fear reaction and stopped work altogether. Two weeks before admission he was struck by an automobile; was unconscious for 10 or 15 minutes, then developed ideas people wanted to come into his home to kill him, was confused at times, suffered insomnia and was finally committed.

Physical examination upon admission was negative

save for the left pupil which was said to be slightly larger than the right, both reacted. Wassermann was negative on blood and spinal fluid.

Patient himself gave a history of first head injury about two years ago and of "slipping," as he called it, during the last year and a half; could not work as he formerly had and finally had to stop. When asked what he considered the cause of his trouble he became agitated, cried, asked if it was necessary to go into details; was not sure as to whether he was right or not but thought his wife had taken a liking to a German; that she was in collusion with a doctor who was interested in her; and had been working in an office with many men which had made him suspicious. Ten days before admission he was struck by something that rendered him unconscious and awakened in a hospital (second injury). He was told he was struck by an auto but thought he was followed and slugged. His wife possibly may have had something to do with it. Perhaps she put him in the hospital to get a divorce. He would sift things to the bottom when he got out. Diagnosis—Traumatic constitution. He was paroled December 23, 1920, by his wife and taken to a sanitarium.

Patient was reported February 23, 1922, to be in good health and at work in a responsible position.

Under this same general heading of the traumatic constitution the neuroses associated with comparatively trivial physical injury would naturally be discussed were it not for the fact that during the late war and subsequently they have, together with those not connected with injury, acquired such importance and have accumulated such a literature as to forbid their treatment in a limited space. The subject of shell shock may be dismissed here with the statement that in general it represents the individual's retreat from an unbearable situation.

Mental defect, or dementia, is naturally the end state of such traumatic cases as do not die or recover. Dementia results either directly out of the primary lesions or from subsequent degenerative processes or develops as the result of epilepsy, alcoholism, arterio-sclerosis, senility, etc. The picture is that of an organic dementia with loss of efficiency, weakened memory, loss of impressibility, poor grasp of the situation, more or less recessive behavior and possibly episodes of excitement, etc. Upon the whole it is a difficult state to differentiate from old dementia praecox, but the diagnostic points already referred to may be of assistance.

Convulsive seizures may occur at any time following a head injury, but *true epilepsy, in the sense of an organized habit of energy discharge, usually requires time for development, often many years,* and may then arise directly or indirectly out of heredity, alcoholism, arterio-sclerosis, etc. Autopsy sometimes reveals bony spurs at the site of old hemorrhage or adhesions of the cortex to the scalp through a bony defect, cortical softenings, pachymeningitis, etc. Bergerhans, Pfeifer and Perity[7] in 1918 reported from 12 per cent. to 33 per cent. of epilepsy in their head cases in the German army hospital service. Upon the other hand, Percy Sargent,[8] in emphasizing the dangers attendant upon adhesions of cortex to scalp, states that in a survey of 25,000 head cases made in England by a board of pensions in 1919 but 800 cases (only 4½ per cent.) were found to be epileptic. In civil cases great care must, of course, be taken to make sure that a fit was not the cause of the trauma rather than the other way about. Thus the late Dr. Moyer in a personal communication to the writer stated that out of a considerable number of apparent cases of traumatic epilepsy carefully studied he found many where there could be little question but that the first fit was independent of any trauma. In such cases everything depends upon a most careful case history of family, patient and accident.

The part played by head injury in the precipitation of organic mental disorder at times affords opportunity for much argument.

Mary D., age 61, married, U. S., committed February 19, 1921. Family history apparently negative. Patient was said to have been well behaved by her family and her neighbors until six weeks prior to admission when she was struck by a taxi, was taken to a hospital and remained unconscious for about two weeks. Relatives stated that she had a skull fracture but the attending physician stated that he could discover none. During the latter part of her stay in the hospital she had to be restrained because she would not stay in bed. She would change the subject while talking, misidentified her children and "acted like a child."

Physician's examination showed an old lady, blood pressure 175-130, pupils normal, tremors of tongue, fingers, eyelids.

When examined she was quite restless, was not oriented, behaved as if she were in her own home, could not find her way about, had no recollection of the accident, could not give the day or month and misidentified persons; could not do arithmetic, retention poor. She was diagnosed at the Psychopathic Hospital as senile dementia, but in view of the accident, and neighbors having said she was apparently

7. Allge: Zeitschrift f. Psych., lxxiv, p. 610.
8. Brain, xliv, Part III.

normal prior to it, she was diagnosed at the state hospital as traumatic dementia.

The patient was removed from the hospital and died at home shortly after. The coroner's physician found no evidence of hemorrhage, fracture or injury to brain. Blood vessels were engorged but no gross pathology. Heart was enlarged. Arterio-sclerosis marked. Large white kidneys. The verdict read "Deceased came to her death from chronic heart and kidney disease complicated by dementia."

Here it would seem that the accident merely precipitated a senile dementia, but if the facts were as represented, the trauma might even so be held accountable for the patient's mental illness and subsequent death since without it senile dementia might not have appeared for some time.

The following case presents another angle for consideration, although there was fortunately no question of liability:

Joseph C. Admitted March 31, 1921, 53 years old, Irish. Father drank heavily. One brother in Elgin. Patient had been a bar keeper and steady drinker for many years. Drank only occasionally since saloons closed. A few months prior to admission he slipped upon the ice and fell, was unconscious for an hour and dazed for several hours after. Some weeks later he became nervous, saw people looking in the windows, wanted to lock the doors and draw the window shades, seemed stupid and answered questions poorly; became forgetful, did not recognize his own children, diagnosed at the Psychopathic Hospital as chronic alcoholic with deterioration.

Physical examination was negative, save for coarse tremors of fingers; blood pressure 120, spinal fluid negative. When examined patient was quiet and cooperative, denied drinking to excess. He remembered slipping on the ice and being assisted into the house, but did not know how long it was before he came to himself; went to the County hospital on account of pain in the head; seemed stupid and not clear to remember what was done for him in the State hospital. Denied delusions or hallucinations. Did not seem to remember his paranoid ideas. General information quite poor.

Here again we have an instance in which the trauma served merely to intensify a mental state already existent, although the relatives did not realize it, their attention being called to it only when he began grossly to misbehave following the accident.

And finally there are the great multitude of cases *where mental change seems to follow so closely upon an injury not affecting the head* that there would seem to be some degree of causal relationship. Unfortunately actual cases cannot be cited because they have been lost among other hospital records. However, a typical one would read something as follows:

John Doe, age 30-35, probably a foreigner, a laborer in the steel mills, we will say, and married, sustains a very moderate crushing injury of the hand and foot, possibly with loss of a part of a finger or toe, involving repeated dressings. He receives some sick pay and loafs about for several weeks, drinks more than usual and broods over his accident, wondering whether he will ever be as good a man again as he was before, etc. When the doctor finally tells him he can go to work he does so half heartedly and lays off a good deal. Finally he stops work altogether and begins to develop some loosely knit paranoid ideas, together with a general let down of interest in everything outside himself. Finally he becomes excitable and so irritable, even violent at times, that he must be committed.

The further course of the case is that of a mild dementia praecox. What is the answer? Obviously not that trauma of the foot or hand causes dementia praecox. Very possibly the patient has an insane brother or sister in the old country. Perhaps the change was already incubating and a slightly lowered resistance due to the shock of the accident and the fear of permanent disability was enough to bring the affair to a crisis in an already burdened individual.

CONCLUSIONS

1. The pathology of mental disorders following physical trauma varies from apparently nothing at all, through microscopic changes to gross hemorrhages, loss of brain and bony tissue and massive infection. The latter are too familiar, the former too debatable ground for discussion here.

2. There are no pathognomonic symptoms. *"There is no psychotic entity which can be diagnosed as a traumatic psychosis without history of a definite relation of the mental disturbance to preceding trauma of the head."* Any form of mental disturbance may appear after head trauma. A list of somewhat classical finding in fairly definite cases has been given.

3. The diagnosis of malingering depends upon examination and extended observation. It is comparatively rare and probably always occurs in a low grade individual because it is a primitive type of reaction. Neurotic symptoms in one who is not malingering may improve or disappear after compensation is obtained. It is common for an invalid to make the most of his symptom. Unconscious simulation is not malingering. It is a neurosis.

4. Amnesia occurs after head accidents, after the perpetration of criminal acts, in epilepsy, hysteria, etc. It must be thoughtfully evaluated whenever it occurs as a symptom, i. e., is the

memory gap due to traumatic unconsciousness or to *an imperative need to forget.*[9]

5. *Trauma not involving the head may precipitate a disorder which is not a traumatic insanity but some form of endogenous psychosis.*

6. Prognosis depends to a considerable extent upon the presence or absence of features pointing to the ordinary psychoses. Paresis must be ruled out in adults, dementia praecox in the young, arterio-sclerosis in the elderly, senile dementia in the aged and brain tumor in all. Unconsciousness followed by delirium and confusion rather points to a frankly traumatic affair and has a more favorable prognosis.

7. An organic condition, as Southard so aptly expresses it, may become so wrapped about with a neurosis as to make diagnosis, prognosis and treatment all very difficult.

8. Liability, if in question, can only be determined after a most careful survey of the patient's family history, personal history and characteristics prior to the accident, together with all the medical facts obtainable.

9. Vide, "Hysterical Amnesia Following Physical Injury." Charles F. Read. Mental and Nervous Diseases, Vol. 58, No. 6. Dec. 1923.

TREATMENT OF BENIGN UTERINE HEMORRHAGE WITH RADIUM*

AN ANALYSIS OF 138 CASES

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In August, 1923, Dr. W. C. Danforth reported on the radium treatment of one hundred patients having benign uterine bleeding. The large majority of these were cared for on the gynecological and surgical services of the Evanston Hospital by Dr. W. C. Danforth, and Dr. W. R. Parkes. The hospital records from the date of this last report to the present time contain 38 additional cases.

This report is made both for comparison and to supplement the report by Dr. Danforth, therefore, from time to time with his permission, I have made use of parts of his report.

The results of treatment in the 38 cases were most satisfactory. Of this number there were 35 cures, 1 failure, and 2 cases in which, because of relatively recent treatment there still remains a possible chance of failure. Therefore, on the basis of 36 cases treated we have a cure in 97.1 per cent.

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The results just mentioned were obtainable because: First, the cases were handled for the most part by men who are *well versed* in gynecology or surgery. In Dr. Danforth's report there were 2 cases which confirm the above opinion.

Second, the cases were properly selected as being suited for this type of treatment. Radium therapy should never be used in cases of acute or chronic pelvic infection, because it is a known fact that streptococci are harbored for a long period of time in the uterus and adnexia and the effect of radium may light up a latent infection, with disastrous results. In Dr. Danforth's report an example of this was noted:

> We have recently had an opportunity of examining a uterus which had received 1200 milligram hours of radium. Diagnostic curettage was carried out prior to the introduction of the radium and the microscopic examination of the material obtained revealed adenocarcinoma of the body of the uterus, for which hysterectomy was done about one week after the irradiation. Grossly the endometrium and uterine musculature immediately underlining it was reduced to a gray sloughing mass, completely necrotic. The microscope showed necrosis of these layers with marked round cell infiltration of the uterine wall underlying the stratum of necrosis. Clearly, a trauma of this severity cannot safely be applied where infection may remain.

Third, all fibroid growths which have become greater in size than a 3½ or 4 months pregnancy were excluded from this form of radium therapy, because when the growth has reached such a size there is danger of a beginning degenerative process and in such cases extirpation of the growth should be resorted to.

Following the same division of cases as in Dr. Danforth's report we have divided our cases as follows: Under 20, from 20 to 30, from 30 to 40, from 40 to 50, and over 50 years.

To date in our total of 138 cases we have two under the age of 20, one 15 and one 16 years of age; both had adolescent myopathic bleeding. One was given 250 milligram hours, and the other 300 miligram hours. Diagnostic curettage was not done in either case because in such cases it is not necessary and if done would probably be harmful. In the patient of 15 years there was an amenorrhea for 2 months and a normal menstruation thereafter. In the 16-year-old case there was a prompt diminution in the

menstrual flow and after 3 months, normal menstruation. Extreme care in this class of patients is necessary, in that too much radium or too long an insertion of it may cause permanent sterilization.

In the present series there were only two cases between the ages of 20 and 30. One 23 years with adolescent bleeding for which 50 mg. were inserted for four hours, the other, 30 years, with myopathic hemorrhage, was treated by a diagnostic curettage followed by the insertion of 50 bg. of radium for 24 hours, with good results.

Between the ages of 30 and 40 we had 12 cases variously treated for chronic hyperplastic endometritis with bleeding, myopathic hemorrhage bleeding submucous fibroid, and in the previous report in which we have the largest number of cases, the condition for which treated is almost invariably that of climacteric hemorrhage with the exception of a few uterine fibroid (bleeding).

We treated no cases over 50 years of age in the present report.

The dosage of radium should be governed by the age of the patient as well as by the indication for its use. The dosage for patients under 25 years, the period in which we have to deal with adolescent bleeding, should never be over 250 miligram hours, preferably less, and the dosage to be repeated if necessary. Following such treatment there is generally an amenorrhea from 1 to 4 months, followed by a normal menstruation.

In the period from 30 to 40 in the treatment of fibroid we must use special care in dosage in order that an early menopause may be avoided; 25 mg. for 24 hours is usually sufficient. As in the previous and following decade diagnostic curettage should precede the insertion of the radium. In this period we also deal with myopathic hemorrhage, the usual dosage being 50 mg. of radium for 24 hours.

In 1919 I treated a Mrs. W., age 39, for a severe menorrhagia of 6 months standing. During the 6 months preceding treatment there had been only one week between each period. The patient was anemic with a hemoglobin of 64. A diagnostic curettage followed a careful bimanual examination under anesthesia with no positive information from either examination. Fifty mg. of radium were inserted for 24 hours, with a satisfactory but a rather unusual result. The flowing ceased within a month and for the following 11 months there was a complete amenorrhea. Following this period of amenorrhea the ovarian function returned and the patient has had normal menstruation to the present time. This is the longest period of amenorrhea followed by a normal menstruation that has come to my attention.

In the decade from 40 to 50 this report agrees with the previous one in that it contains the largest group of cases. In this group the permanent relief from hemorrhage is our sole and only task. Uncomplicated by fear of inducing early menopause or prevention of a possible pregnancy, we give the full dosage of 1,000 to 1,200 milligram hours. Our results to date during this decade have convinced us that radium therapy for hemorrhage of myopathic origin and small bleeding fibroids is far superior to that of surgical procedure.

One case of interest from this group is that of a Mrs. C., age 45, operated on 7 years ago by Dr. Dwight Clark for carcinoma of the breast. The patient returned for the treatment of vaginal bleeding of several weeks standing. Bimanual examination revealed a number of small palpable masses on the body of the uterus. Some form of malignancy, of course was suspected. Diagnostic currettage gave no positive information. Fifty mg. of radium were inserted for 24 hours, the hemorrhage gradually diminished and in a few weeks the bleeding ceased. The patient's condition at the present time is most satisfactory.

In this report we have no cases over 50 years, but in the previous one Dr. Danforth states that: "We have also treated 14 women of over 50 years. In these we have had uniformly good results with dosages similar to those used in the previous group."

In the 138 cases of the two reports we had 9 failures. Of these 5 were relieved by a second application and 4 required operation. Two of the series were treated so recently that we are unable to give a final report.

The usual surgical technic is used in preparing a patient for radium therapy. A diagnostic curettage is performed and the specimen is sent to the laboratory for a careful microscopic examination.

Following the curettment a thorough application of iodine to the uterine canal is made, and

the radium capsule is introduced into the fundus. In the majority of cases 50 mg. are screened with 1 m.m. of brass, with a layer of pure gum rubber, wrapped about the capsule. If the affected area is large, i. e., in fibroids simulating pregnancy of 3 months, and if the dose is doubled it is best to insert 2 cylinders in tandem with the same screening, as used with a single capsule—duration of treatment and resultant nausea are thus reduced. The radium is often used with an additional screening of silver. Gauze is packed anteriorly and posteriorly to the cervical canal in order to protect the bladder and rectum. Formerly we used heavy silk attached to the radium capsule for use in extracting it. On two occasions it became necessary to take the patient to the operating room and extract the radium from the fundus with dressing forceps because the silk became unfastened when an attempt was made to withdraw the radium. We are now using a fine pliable wire, which is proving satisfactory.

The nausea which often is present during the time the radium is in the uterus disappears within 48 hours after its removal.

Following the treatment the bleeding may be more profuse, especially if a menstrual period follows immediately upon the treatment, otherwise, there is only a scanty flow and that usually ceases after a month. Another annoying feature is a watery discharge which may continue for several weeks. This discharge is the local reaction to the radium and is self-terminating. A few patients have complained of a profuse and persistent leucorrhea. This, too, will subside following the local effect of the radium.

In those cases in which we use the full dosage of 1,200 milligram hours, at the beginning of the climateric, the menopause symptoms have been similar to those of a normal mild menopause.

Summarizing the two series of cases, eliminating those which failed and those which had a second or third treatment, 95 per cent of the treatments were successful. Both series have been free from mortality and morbidity following treatment.

Because radium therapy has been used with such satisfactory results in the type of cases mentioned above and is accompanied by so little trouble and danger to the patient, we are convinced that such a procedure has a very important place in medicine.

There are those who are of the opinion that hysterectomy is preferable in certain types of the cases included in our list. In spite of the fact that the mortality in hysterectomy in expert hands varies between 1.5 per cent and 2 per cent, Selheim favors this procedure in some instances. He mentions three detrimental effects of radium to support his theory, namely: 1. A sudden destruction of ovarian function even at the beginning of the climacteric does not occur without leaving a trace, it often causes true signs of loss of function not seen in extirpation of the uterus. 2. There is a local trophic disturbance of the uterus often manifested by metrophy accompanied by excessive secretions. 3. A pronounced injury of the blood which is not compensated even ten weeks after the use of radium. Although all of the cases reported by Selheim gave a history of long standing hemorrhage, the blood picture of those in which extirpation of the uterus was performed returned to normal after ten weeks, whereas of those cases which were treated by radium none had returned to normal at the end of this period; there still remained a decided increase in both leucocytes and erythrocytes and blood platelets.

CONCLUSIONS

1. In the treatment of benign uterine hemorrhages radium therapy has its greatest usefulness in women past the age of 40. In younger women small dosages of radium are sometimes used. The use of radium in adolescent bleeding is not as popular as at first; its use in this type of bleeding is confined mostly to the cases that have not responded to glandular therapy.

2. Radium therapy is contraindicated in the presence of pelvic infection past or present.

3. Only fibroids smaller than those simulating a three or four months pregnancy should be treated with radium. Large fibroids and those obstructing the cervical canal should be treated surgically.

THE WISE MAN

The man whose only hold on his customers is that his prices are a shade lower than his competitors has a mighty insecure business. The wise man makes his service superior, and then the price element drops down where it belongs.—From Forbes.

THE CORRECT DEVELOPMENT OF THE GROWING FEET TO INSURE HEALTH

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The feet are the most faithful servants of our body, and as a rule are treated the worst of all. They have to carry us through life, in millions of steps, years of standing, and with little appreciation of these duties, we squeeze them into more or less irrational shoes, and conduct them into an improper position. The wonderful machine of the foot is one-half unused, and the one-half that is used is employed in an inappropriate manner. The human foot is an active organ of locomotion, and not a passive support, on which to stand and walk.

The foot is a propelling machine. Therefore, the evil effect of faulty foot-wear can best be understood by a comparison of the shoe-bound foot of today, with the ideal, represented by the famous foot, in the "Hermes of Praxiteles." In this, the inner edge is straight, the outer edge is slightly curved, the little toe is neither crumpled nor twisted, and lies parallel to its fellows.

Compression of the foot in front is the most common deformity—curling downward and inward of the little toe from side pressure made by a too narrow shoe. The deformities which are the result of crowding the foot into the shoe, have been universally represented in art since the sixth century, B.C., as seen in the Gladiator, and other famous statues. Investigations of large collections of shoes, such as the one at the Chicago "World's Fair," or the one at the Musee-Cluny in Paris, demonstrates the fact that deformities of the feet were as common during the dark ages as they are today, and since deformities of the feet occur very early, during adolescence, it is exceedingly difficult to find a normal foot among civilized people. If found it will usually be discovered that the possessor has not worn shoes during this period.

A good example of the effects of pressure in producing deformities of the feet, is seen in the ingenious devices for bandaging and deforming the feet of Chinese women. Flat-footedness and faulty weight-bearing is a national problem, and was a prevalent cause for unfitness in the army. This is a very important problem in civil life.

One factory of ready-made arch supports, claims to sell three thousand pairs each month, to shoe stores. This shows the demand by the public. A geographical study of the distribution of the defects of feet, found by Examining Boards under the draft, revealed the fact that abnormal feet were comparatively rare in the Southern States, due to the practice of the rural part of this population in going barefoot.

In little babies, one frequently sees an apparent flat foot, when the foot is placed upon the ground, but in reality this is due to a pad of fat fitting in the arch, and is not a true flat foot. Where the true deformity is noticed, proper shoes, made on anatomical lines, will usually give very satisfactory results, without the use of arch supports. This fact is very well demonstrated in the Army and Navy, where no arch supports are used. The American Public Schools show that approximately seventy per cent. of the students have faulty weight-bearing lines, resulting in foot trouble; this is a very important question in relation to the efficiency of the race. It has been proven, when walking in high heels, that there is comparative inaction of the muscles of the legs and feet. This results in less nutrition and less perfect circulation through the legs and feet. High heels upset the architectural balance of the feet and legs, and the effects of the incorrect attitude are felt in the spine and pelvis; they induce and aggravate lordosis (or hollow back) and eventually cause flattening of the anterior arch.

Colonel Munson, M.C., U. S. Army, states: "The marching powers of the 'foot troops' are a most important factor in the conduction and success of battles and campaigns, and the Army which marches best, other things being equal, is the successful Army. Mobility is the key of military success, and troops which cannot march, will not be given, by a more vigorous enemy, opportunity to fight, except under what may prove to be decisive military disadvantage. The effect of badly fitting shoes, upon the psychology of the war, is very great. Even where the soldier is able to continue the march, the discomfort produced at every step soon reduces buoyancy of spirit, causes mental irritability, and materially diminishes fighting capacity."

This applies even to a greater extent in carrying out our duties in everyday life. Fortunately the deforming of the feet, from shoes producing such conditions as bunions, varicose veins, overriding toes, hammer toes, corns, callousities, in-

growing toe-nails, etc. (if in a mild degree), can be rectified by the wearing of anatomical shoes.

The pigeon-toe walk, which is very commonly seen in children, is generally a sign of weak feet, and upon examination the bulging of the inner side of ankles and the flattening of the arches, show very plainly that it is the foot, and not the attitude, that requires treatment. In fact, this attitude is Nature's method of really safeguarding against increasing deformity, which will correct itself when its cause is removed. This can be done by fitting proper corrective shoes, built along scientific lines. Shoes for an adult should be at least one-half an inch or more longer than the distance from the heel to the tip of the great toe. The shoe should be straight from the tip to the ball of the great toe and it is most important that the distance from the ball of the great toe to the heel, should correspond, in the shoe, to that in the foot. Most shoes are made of the same thickness over the ball of the great toe and little toe, which is not correct. Corns are the result of wearing improper shoes, and if the basic foundation or shape is correct, there is no reason for their existence. By wearing a properly shaped shoe, it makes little difference, other than seasonal, whether a high or low shoe is worn, except that the tendons are less hampered above the ankle in a low shoe, and there is free play, commensurate with shoe support. Button shoes are not desirable where real support is sought.

The detriment of a faulty shoe, to efficient functioning of the body has been stressed. The foot-sore man, woman, or child cannot, or is disinclined, to walk or exercise. Health-giving exercises promote circulation, respiration, digestion and elimination. Without it poor circulation, indigestion, nervousness, atony, lethargy, flabbiness, auto-intoxication, obesity and a train of other symptoms result, which the physician should do well to treat with shoes, and not with pepsin or digitalis.

The publications of the Life Extension Institute have emphasized the importance of this remedial measure and it has been even suggested that legislation, both national and state, be exacted, to make it a punishable offense for a shoe manufacturer to turn out a shoe not built on anatomical lines—one that will be responsible for deformity or disability to the ignorant or unsuspecting purchaser.

There is no relation between the height of the arch and strength of the foot. The much abused high heel shoe is not always entirely to blame for foot troubles, although they are often monstrosities, anatomically and functionally ridiculous. With the pointed shoe it is even at times difficult to tell the right from the left, but under the salesmanship idea that they are "smart," "chic" and fashionable, or perhaps in this age of better hygiene, "in stock," they are readily sold. The more intelligent women will not have such a deforming shoe "put over" on her. The term, breaking in a shoe, is often used in connection with a new purchase, when in reality in the majority of cases it is the foot that is being broken down. There is no valid reason why a new shoe should cause any discomfort, and they will not, if built on proper scientific lines and properly fitted. Shoes made along the lines of the Munson Last are most excellent, and will meet the requirements of approximately eighty-five per cent. of the race. All shoes should be constructed on that idea, as the value of this has been proven during the world war. Properly shaped shoes are most desirable to avoid foot trouble, and it is not necessary nor desirable in the majority of cases, to use arch supports. The use of arch supports in most cases is harmful, and much better results are obtained by proper correction, and by the use of correct fitting shoes, along with graduated exercises.

The object of the shoe is to cover and to protect the foot. Therefore, the one should correspond with the shape of the other, but the shoemaker's foot, to which most lasts conform, is much narrower than the actual foot. Rubber heels should not be worn by young and vigorous individuals. Elasticity in gait is assured by the action of the calf muscles, not by a yielding substance beneath the heels.

By providing proper shoes for children, deformities will be prevented, as by inspection of the children's feet, it is shown that atrophy and compression begin at a very early age, and if protection could be assured during the period of rapid growth, serious distortion and diseases enumerated above, will be prevented.

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CLINICAL CLUES OF VALUE IN THE EARLY RECOGNITION OF PRE-TUBERCULOSIS*

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The most difficult task that confronts the physician, as Sir James McKenzie is fond of saying, is to recognize the buds and tendencies of disease. This is not only true as to the recognition of the pre-tuberculous stage of tuberculosis but is equally true in many, if not all, other diseases.

The art of differential diagnosis requires laborious mental concentration and effort to reason correctly. A single observation in the consulting room or at the bedside of a patient possesses only a relative degree of value and will not lessen the limitations of error that daily occur from hasty observation and faulty deductive reasoning. Nor will a single observation supplemented by examination enhance the value of the most essential requisite for one in the practice of medicine or surgery to attain—namely, clinical judgment.

If a greater degree of time were given to each case that comes under the physician's observation and a greater degree of humane interest manifested and shown each patient, the art of diagnosis would be elevated upon a higher plane, and our mental power of deduction would reach a higher degree of perfection, the errors due to omission and commission would become greatly reduced in number, and the science of medicine would rest upon firmer grounds and be supplemented by the art.

There is nothing so refining in its influence as good reading on any subject. It will sharpen the dullest intellect and put an edge on the keenest, as well, but it seems impossible to impress this upon physicians in this modern age of commercialism with the psychological opportunities it affords. The progressive and up to date rule is—take care of it now; if I do not my competitor will. If the physician and especially the surgeon could forget the dollar for one hour each day and devote this short space of time in searching the medical literature, be it book or periodical, for clinical clues of diagnostic importance, a highly profitable asset would be added to the knowledge already in his possession and his natural aptitude in relation to diagnosis and clinical judgment would be greatly enhanced.

The clinical clues of value in the recognition of the incipient signals of disease will not be found or contained in any text-book of medicine. Every master clinician at home and abroad mentions some clinical clue which from his own personal observation and viewpoint possesses in a degree some clinical value. All medical works are egotistical either furtively or frankly. The subject matter emanates from the mill of the author's own brain while the knowledge possessed by others acquired through years of observation and experience much greater than their own receives only a passing reference. Some clinical clues of value have never been recorded in a medical book and if earnestly sought for by the physician may be frequently obtained by reading the current medical literature of this and foreign countries. Such clinical clues do not always emanate from the professors of instruction connected with medical universities or come from the more modern group—clinic affiliation of specialists, whose experience in many instances is extremely limited. They are observed, stored up, and given out by the general practitioner who has made application of his natural gift of mentality by giving the necessary time to observation and concentration of thought essential for one to perceive the signals of living pathology.

The ultimate object of medical science is prevention not cure. The ultimate aim of any curative system is to influence a morbid process while it is still in a stage when skillful interference will do permanent good. This applies to surgery as well as to medicine.

I believe that if we, as physicians, put forth greater efforts to improve that special sense of observation, *one of the rarest of qualities,* we will be able to recognize more frequently the incipient signals of disease that have heretofore and are at present escaping our attention.

When the tubercle bacillus appears upon the scene under the high power lens dressed in a robe of gentian or crystal-violet or clothed in a coat of fuchsin red, the pre-tuberculous stage of tuberculosis has escaped our diagnostic acumen and can usually be recognized by one or more of the physical signs elicited by auscultation and percussion, providing one's mental perception of the various degrees of tone pitch and sound has

*Read before McLean County Medical Society, Nov. 11, 1924.

been developed by intensive application and practice.

Let us remember that after all the five well-trained special senses are usually indispensable in detecting, in the words of McKenzie, the buds and tendencies of disease and in reaching a correct diagnosis when any morbid process has invaded and involved structure.

All of the great clinicians, past and present masters in the art of diagnosis, have attained such distinction by the development of their mentality. For this reason it would be well for us all to follow in the footsteps of the masters and not to be led astray from the path that has proven itself efficient in separating the chaff from the wheat and in permitting us to retain those kernels of knowledge which represent the highest degree of efficiency.

An English writer has said that the microbe—the seed—has ruled the past; the future is with the soil, the endocrine glands. I believe that there is more than a grain of truth in this statement. If we have the vision to see and the wisdom to look ahead, we will give more attention to this interesting field of study and by so doing we may be able to detect more frequently the incipient signals of disease and control their morbid tendencies with a greater degree of success than has been afforded to us by the older clinical methods of treatment.

Many of the clinical clues that I shall now call to your attention are within your possession and you have no doubt used them to advantage. You may be in touch with all that I shall mention. If this be true it is evident that you are still a student, which is a highly commendable attribute to the physician who is sensitive to those obligations and duties expected and required of one engaged in the practice of medicine.

With your indulgence I shall now present to you those clinical clues of value which are regarded by those whose experience entitles them to speak as being helpful aids in recognizing the pre-tuberculous stage of tuberculosis. In so doing I do not advance any single clinical clue as the result of my own personal observation. They have emanated from the master clinicians of the times and are not sectional in origin.

A constant succession of colds occurring in the same individual should never be regarded with indifference but looked upon with a watchful eye and an apprehensive suspicion. It is a very suggestive clue of early tuberculosis and is the signal of vision as well as of wisdom for skillful interference by the physician. This is the one time, above all others, that affords the patient the greatest degree of hope and the physician the assurance that his professional advice and well directed efforts as to treatment will be crowned with a greater degree of success.

A constant succession of colds may be said to possess this degree of pre-tubercular importance—that it is positive evidence of a mode of life favorable to the ingress and growth of all aerial microbes. As a result of this invasion, the soil's vitality is depressed and natural resistance impaired which renders the child or adult an easy prey to the inroads of the bacillus of tubercle, which is cunning enough to recognize and to take advantage only when the lines of defenses are broken down and impaired.

Tachycardia.—In common with all other toxic agents the poison of tubercle has certain physiological effects. Of these, one of the most important and far-reaching is its relaxing effect upon the peripheral vessels. The tuberculous toxin is initially, above all things, a powerful vaso-dilator. This makes it very simple for us to understand, recall, and comprehend many of the phenomena of pre-tuberculosis which otherwise would appear difficult and obscure.

What is true of most of the other clinical clues is conspicuously true of tachycardia—namely, that it is by no means always present. In cases of active tuberculous lesions it is, of course, a prominent and constant symptom but in the very earliest stage of pre-tuberculosis there is no acceleration of the ventricular or pulse rate. Should it be discovered in connection with one or more of the other clinical clues it will be highly suggestive of this stage of the disease.

An unduly rapid pulse in an otherwise seemingly healthy person should always suggest tuberculous infection as its cause. When such a tachycardia is observed in young men, extreme care in defining its clinical significance should be observed. By assuming that excessive tobacco smoking in young men is the cause of such a tachycardia has frequently permitted errors in clinical judgment to occur.

In the very mild types of thyroid intoxication of the typical exophthalmus type or in the so-

called adenoma, of hyperthyroidism, tachycardia occurring in women from fifteen to thirty years of age may, at times, become exceedingly confusing as to its clinical significance and task one's diagnostic acumen to the very highest degree. Especially will this be true if the classical diagnostic tripod, exopthalmus, palpitation, and tremor, be not in evidence. There are fortunately, however, some helpful differential points that will lessen the possibilities of error and enable us to define with a greater degree of certainty the type under observation.

In the tachycardia of pre-tuberculosis, even in the presence of a temperature reading of 99 F. to 99.6 F., the basal metabolic rate is not likely to be increased but this rule is not infallible. However, the *blood pressure readings in tuberculosis are invariably low, there being but few, if any, exceptions to this rule.*

In the tachycardia of the toxic thyroid the metabolic rate will be found above the normal average in a fairly large per cent of such cases, but there will be at times exceptions to this rule. The sphygmomanometer readings will show a high diastolic pressure as well as a high pulse pressure if the virulency of the toxicity at the onset affects the cardiovascular system.

Every case coming under one's observation in which the chief complaint is nervousness with the statement from the patient that there is tachycardia on excitement or moderate exercise is the very first signal of the mild toxic thyroid and should be considered highly suggestive of hyperthyroidism until proven otherwise. Visible and palpable enlargements of the gland will be generally detected in these mild cases if diligently sought for.

Albuminuria.—Another clinical clue, the result of vaso-dilation caused by the toxin of tuberculosis, is albuminuria. Owing to the baso-dilative effect of the poison this passive congestion is very frequently observed to occur in tuberculosis. It is not, of course, suggested that all those who present the phenomenon of cyclical or postural albuminuria are necessarily pre-tuberculous, but the opinion has been advanced by one of the master clinicians abroad that the discovery of albumin in the urine of an adolescent which has not been voided immediately after exercise is a clue which should lead to a very minute examination for other evidence of tuberculosis.

Albumin will appear in the urine if the kidneys are in any degree passively congested, especially, if the patient is going about in the ordinary way—that is, the greater part of his time in the erect posture. This is a phenomenon with which many of us are familiar in the cyclical or postural albuminurias of adolescence. On the other hand it brings to many a physician visions of despair implicating the innocent kidneys. This should not occur, if one can but call to mind, that it is, in reality, due to want of tone in the muscular coats of the peripheral vessels giving rise to passive congestion in the renal area. In this "walkless age" and lack of general and regional exercise, nerve innervation and muscular tone are impaired which predispose to relaxation of supports and misplacement of viscera—factors which are highly conducive to passive congestion.

Dyspepsia.—Another clinical clue that is frequently observed to exist in the early or pre-tuberculous stage of tuberculosis is dyspepsia. It is the result of the action of the toxin which produces a relaxing effect on the peripheral vessels. The type of the dyspepsia is asthenic which is due to a faulty adjustment between the blood-pressure in the local areas. Extensive vaso-dilation disturbs the normal balance and diverts away from the gastric area that increment of blood which for the purpose of normal digestion is essential to it. The dyspeptic symptoms which so frequently announce the eruptive stage of tuberculosis are easy to understand. *The most lamentable fact is that we, as physicians, often forget to recognize their clinical significance.*

Always be suspicious of the asthenic type of dyspepsia occurring in early adolescence. Use your binocular vision in place of your ocular and in so doing an opportunity will be afforded you, using a slang expression, to put it over the gastroenterologist as well as over the army of operators who are endeavoring to acquire technique in place of trying to improve their clinical judgment.

Mental hebetude and muscular debility.—The two clinical clues, mental hebetude and muscular debility, are apparent in many other conditions besides tuberculosis. However, their continued presence *in young people* without a well defined obvious cause strengthens the number of clinical clues upon which the foundation for a reasonable suspicion may be entertained. A large number

of lethargic children, who have been reprimanded and punished for indolence at school when such causes as *eye strain, adenoids, and nasal obstruction,* can be excluded as responsible for such conditions, *owe their lack of energy and want of comprehension* to the relaxing effects of the tuberculous toxin. Furthermore, many who have reached the age of adolescence are classed as "psychoneurotics" or as "neurasthenics" when the resulting nervous exhaustion is due to the invasion of the bacillus of tubercle and the deleterious action of its toxin upon nerve and muscle.

A French physician has said in regard to people's mind, "All the world is cracked but some of us conceal the crack better than others and those of us who conceal it the best are very uninteresting creatures." Under these conditions it is not unreasonable to assume that the tubercle bacillus will be found in some of the many crevices and if we are alert we may bring him out from his place of seclusion.

Suppression of menstruation.—Another vasodilative phenomenon. Menstruation is brought about by the dilatation of the pelvic vessels coincidently with a contraction of the other systemic arteries. By administration of amyl nitrite or trinitrine the contraction of these arteries is prevented and in this case the menstrual flow does not appear. The elaborated toxin of tubercle acts in the same manner although its action is less powerful.

Amenorrhea is a common clinical clue of obvious tuberculosis and a signal possessing a high degree of clinical value in the early recognition of the pre-tuberculous stage of this disease.

Pyrexia.—Another physiological effect of the toxin of tuberculosis and one of the earliest clinical clues of pre-tuberculous invasion is the irritation of this poison upon the heat regulating centers of the brain and cord and the increased metabolic changes that result from its action. The most important signal being pyrexia, the fever of tuberculosis is one of the most interesting features of this complex disease.

As a rule it is slight and often escapes the attention of the most meticulous observer and although it is almost invariably present, it secretively shields its identity during the day and comes out from its hiding place only at night. It sometimes follows in the wake of a pyrexia due to some obvious and well defined cause and seeks to conceal its true meaning by masquerading as a continuance of the initial complaint. *But the one diagnostic clue about the fever of tubercle is its persistence.*

In the early observation of a disease where the two cardinal symptoms of malaise and pyrexia are present every one of us was taught to suspect the invasion of the typhoid bacillus and the action of its elaborated toxin. It does not lessen the clinical significance to recall the saying of an eminent clinician, Dr. Maxon of Guy's Hospital, to the effect that if a candidate for an examination failed to include tubercle among the causes of continued fever he always referred him to his studies.

When using the clinical thermometer it is necessary to remember that for three or four days preceding a perfectly normal menstrual period a temperature of 99 F. to 99.6 F. may be frequently observed.

The technique of oral thermomerty as practiced today is misleading and permits many errors in diagnosis as well as in clinical judgment to occur. Andrus and Walker of London in the American Review of Tuberculosis state that 71 per cent of tested persons failed to record their maximum temperature elevation by mouth, in five minutes, and 16 per cent failed to record their maximum in ten minutes. *Fifteen minutes by mouth* in temperate weather is necessary to insure *maximum readings.* Twenty-four per cent of patients with fever failed to record fever in five minutes by mouth, while 42 per cent failed to register fever in three minutes. *More time, and less haste,* will lessen our number of pitfalls in diagnosis and enhance the value of one's clinical judgment.

Kingston Fowler, one of the many brilliant English clinicians whose opportunities for observation in this direction are many, says that the *only form of pyrexia which can be regarded as pathognomonic of tubercle* is that in which the *morning temperature is higher than the evening* —a complete reversal of the readings observed and found in other infectious diseases.

There are only two types of pyrexia to my knowledge that may and do at times mimic and simulate closely the fever of tuberculosis and have permitted errors in diagnosis to occur; namely, that of entric fever and syphilis. I just recently had under observation a young lady who had spent several weeks in a tubercular Sanito-

rium with a diagnosis of tuberculosis. Physical examination and the classical laboratory finding were both negative. The only exception from a clinical standpoint being a slight temperature ranging from 99 F. to 100 F. which had evidently been misinterpreted as to cause. But the stigmata of the spirochete and the earmarks of secondary syphilis were in evidence with the blood showing a four-plus Wassermann. This emphasizes that the interpretation of temperature requires of us to have in our possession and call to mind all of the causes that may influence the mercury to rise a degree or two if errors as to its clinical significance are to be overcome.

Physical characteristics.—To an undue irritability of the nervous system we may; I presume, attribute the psychical characteristics of most pre-tuberculous subjects. The sufferers from gross lesions are notoriously, unduly, and even pathetically optimistic in their mental outlook, but such is seldom the attitude of the pre-tuberculous. The environment surrounding the pre-tubercular patient is most forcibly conveyed and impressively defined by the French word *difficile*. They are rarely aggressive but occasionally there is to be noted an exception. Their disposition is erratic, and their higher centers lack self-control. They will not listen to reason, and they usually ignore any suggestion that their physician may offer them in their behalf, and they often try the tact and patience of a physician who is gifted with a sweet, kind, and considerate disposition.

This rapid fire change in manner and disposition when observed in a patient adds an additional link to the chain of evidence at hand, and when correlated in connection with the other clinical clues suggestive of tuberculosis affords confirmatory information of very anxious omen.

Anemia.—Trousseau, at the moment of his time the master clinician of France, was the originator of the following saying which has been attributed to many other physicians since his time—that an anemia which does not yield to iron is probably due to tubercle. The value of this practical lesson cannot be over-estimated. It refers to that type of anemia seen in young girls—namely, chlorosis. Blood examination reveals nothing to distinguish it from the blood picture of chlorosis. After excluding the many causes of secondary anemia, the most essential admonition for the physician to keep in mind and the most important requisite for him to attain is that it should be distinguished and as early as possible.

Anemia of the soft palate. This is another clinical clue that has recently been advanced and emphasized as to its clinical value in the early recognition of pre-tuberculosis by Leonard Williams of England and one which is regarded by him as possessing a greater degree of merit and a higher degree of clinical importance than general anemia. This is the anemia of the soft palate with which all experienced throat specialists are familiar in all cases of laryngeal tuberculosis. This anemia frequently occurs quite independently of a general anemia and independently also of a definite laryngeal tuberculosis, according to this English clinician, and is one clue that from its ease of recognition should always be looked for. In the other two classical chronic diseases of the throat—namely, gout and syphilis, the soft palate instead of being ischemic and insensitive is almost invariably injected and irritable.

Any experienced throat specialist, whose power of observation is as keen as his operative desire and brilliant technique, will tell you that a pre-tubercular throat supports a laryngeal mirror with equanimity, while the gouty or syphilitic throat will often refuse to tolerate it until cocaine has been liberally applied.

Functional aphonia.—This is another clinical clue which has in the past been commonly and authoritatively described as one of the stigmata of hysteria but it is now being invested with a fresh clinical importance, inasmuch as it is looked upon and regarded by clinicians as one of the very earliest manifestations of pre-tuberculosis.

Dyspnea.—It has been well stated that a persistent dyspnea which cannot be positively assigned to a definite cause is almost certainly tuberculous. The dyspnea of the active or fully developed pulmonary lesion requires no explanation but the physician must remember that breathlessness is often observed in the early as well as the active stages of tuberculosis. It may be one of the earliest clues of tubercle and may be the first signal to announce the intercranial or abdominal type of this disease.

The one outstanding clinical clue or signal that should direct our attention, strengthen, as well as magnify our suspicion that breathless-

ness is of tubercular origin is that the most careful examination of the heart and lungs does not permit of a satisfactory explanation for its existence. It, therefore, becomes necessary to differentiate it from the other types of dyspnea in order to assign to it its true clinical significance. It is to be distinguished from the dyspnea of slight effort, which is so suggestive of functional high blood pressure, only by the observation of concomitant signs. If due to hypertension the readings on the sphygmomanometer will be high and auscultation will reveal an accentuation of the second sound at the aortic base, *the diagnostic clue as well as the key to hypertension is that the readings will be high.*

In the dyspnea of tuberculosis *low blood pressure is the predominating characteristic of tubercle* and the patient will generally be young, a clinical clue to keep in mind.

Bronchial glands. When the primary infection comes by the way of the air passages, the most frequent source of ingress, these glands constitute the first line of defense and the action of the tubercular toxin upon them may give an early reaction. As it is impossible to examine these glands during life by the methods of physical examination they may become enlarged to a considerable extent before a signal of such a condition becomes apparent. However, there are two clinical signs indicating this condition that should not escape our attention in examining a patient for tuberculosis—namely, *paresis of a vocal chord* and *inequality of the pupils.* In case of the chord it is generally the left chord on account of the anatomical disposition of the left recurrent laryngeal nerve. For some ill-defined and unexplained reason the paresis may involve and has been noted to occur in the right chord.

The inequality of the pupils, like many other of the clinical clues mentioned, can only be regarded as *tending to confirm a suspicion when aroused* as it occurs in perfectly normal persons. Our mental acumen in relation to the presence of enlarged bronchial glands may often be verified or disproved before the signs of pressure symptoms become obvious to the eye of the observer if we call to our aid the experienced roentgenologist and this we should more frequently do.

The bright eyes. There is a peculiar expression of the eyes frequently observed in subjects of tuberculosis. When once keenly observed it is not soon to be forgotten. The characteristic and outstanding feature, as I have observed it, is *their intensified luster and brilliancy of expression.* While the appearance of the eye gives another valuable clinical clue, namely, that of preputial adhesions the expression of the eyes is altogether different from that observed in tuberculosis. The characteristic feature is its *notable staring look.*

I have been able on two or three occasions that I vividly call to mind to recognize the presence of tuberculosis in adults on this single clinical clue alone and the correctness of my suspicions as well as my mental deductions were verified later by the usual methods of physical examination. No satisfactory explanation of the cause of this clinical phenomenon upon the appearance of the eyes has been assigned. It is in all probability of reflex origin and may be due to a highly irritative action of the tubercular toxin upon the cerebro-spinal nervous system.

Ulnar Reflex. Another recent accessory diagnostic clue emanating from abroad and having the double merit of helpfulness and ease of application is the ulnar reflex regarded by Leonard Williams as a clinical clue possessing at times a high degree of value. The patient's forearm is bared and the arm placed in the flexed position with all of the muscles, especially the fingers, fully relaxed. If a pin be now sharply drawn along the whole length of the ulnar side of the forearm from elbow to wrist, in *most tuberculous cases,* the abductor minimi digiti will contract and cause a distinct wrinkling of the hypothenar eminence.

The response of the abductor minimi digiti while it cannot be called a pathognomonic clinical clue of tuberculosis may nevertheless be regarded as confirmatory evidence of the *strongest suspicion.* Like many other clinical clues there is a certain degree of ambiguity in connection with it. According to Williams when it speaks within certain limits it speaks true but when absent we must not allow ourselves to be lulled by its silence into a false sense of security.

Pleurisy. There is *one form of pleurisy* which is to be regarded with very apprehensive and grave anxiety from the moment of its onset—namely, *that type which comes on without pain, fever, or cough* or any of the signals which usually announce the onset of the ordinary clinical types which you have all observed in practice.

Physical examination reveals one pleura to be full of fluid. This insidious, cunning, and treacherous type of pleural effusion may follow some definite pulmonary disease or it may occur independently of any previous illness. The type under consideration is only occasionally met with but when it does occur *it invariably means tuberculosis.* Effusion whose announcement comes on with pain speaks for the benign or malignant types of this disease.

Exalted Sexual Appetite. French clinicians consider this clinical clue as being highly diagnostic of the pre-tuberculous stage of tuberculosis. The toxin of tubercle would seem especially in young men to exercise a very decide aphrodisiac influence. It is probably the action of the toxin which accounts for the unbridled gratification of passion so obviously evident in both sexes—the subjects of tuberculosis. Our reluctance as well as our modesty should not defer us from making such inquiry of the patient when our suspicions are aroused as to the presence of tuberculosis. It is the little elicited clues that strengthen the powers of mental deduction when correlated with those in our possession.

Opsonic Index. This clinical clue possesses a high degree of clinical value in the recognition of the pre-tuberculous stage of tuberculosis. It is one that is too frequently neglected in its clinical application. *The tuberculo opsonic index* does not in health fall below 0.8 or rise above 1.2. Indices *persistently above or below these levels point to tuberculosis.*

Von-Pirquet's Reaction. As the seed of tuberculosis is generally sown in the early years of life, it is our duty to be alert and to keep a watchful lookout for its appearance in the child. This clinical clue possesses value in children under ten years of age. In adults its clinical significance is misleading and of no practical value.

Calmette's Reaction. This has been discarded by most all clinicians. The same clinical information can be obtained by the Pirquet test without subjecting the patient to any danger upon the part of the eyes.

Injection of Old Tuberculin. This method is not advisable in febrile cases and should not *in any case be used* if the diagnosis can be made in any other way as it is not entirely free from danger. This test may, however, at times remove the doubt of uncertainty and permit the light of knowledge to replace the elements of uncertainty. For this reason it does possess clinical value in the diagnosis of occult tuberculosis and at times its application should be made use of regardless of the slight risk that may occur.

This exhausts the clinical clues and data that I have in my possession for the detection and recognition of the pre-tuberculous stage of tuberculosis. Admitting that there are no one or two clinical clues mentioned that are absolutely dependable in the recognition of this disease, we must concede that the many signals, when properly placed, linked together and deliberately weighed in the higher court of reason, strengthen the chain of circumstantial evidence that we have brought together and permit a strongly suspicious conviction in many instances to become a positive reality.

The goal of hope in this disease is to recognize the buds and tendencies and to spray the seed, the tubercle bacillus, so effectively and efficiently with the skillful resources that we may have in our possession that the *full blown toxins of mixed infection* cannot retard the march of recovery.

Clinicians of the past—Past Masters in the Art of Diagnosis—while they could not in many instances define with any degree of certainty the etiologic factor present, could visualize the shadows and the outlines of living pathology in advance and before the advent of those recognized jewels of diagnostic aids, the microscope, the test-tube, and culture soil. Such a distinction must be and can only be attributed to the development and perfection of the special sense of observation.

That the clinical laboratory has brought to light many a hidden secret of disease and furnished us with many valuable diagnostic clues impossible for the eye to see or the mind to conceive, never dreamed of or entertained before, all must and will concede. But unfortunately the knowledge thus accrued and the benefits derived from same have to a notable degree retarded our individual progress in another and more important direction which is indispensable to the physician whose goal of endeavor is the realization of the highest accomplishment in life, the superlative blessing, the development of the mind.

As physicians, our great fault today is that we have become interpreters of laboratory findings and in a very large degree have ceased to become students of the *sick man.* The most plausible

reason for this condition from my own viewpoint I would assign as follows: Laboratory or direct methods of observation requires but little of one's time, a minor degree of effort, and no mental concentration to observe the characteristic end-reaction in a test-tube or the picture of a blood-film without the reaction as well as the picture under observation is *atypical.*

Clinical or the indirect method of observation requires a great deal of one's time, unceasing individual effort, and laborious mental concentration of the mind upon the part of the physician.

I believe that any physician who loves his profession above those sordid materialistic influences that have a decided tendency to retard individual effort and mental progress may, if he so desires, increase his diagnostic acumen in this disease, as well as in all other diseases, to a very high degree providing he will relinquish his own self ego and his presumption of superior wisdom and knowledge and not express his diagnostic conclusions for a day or two. During this interval, which should be one of deep thought and meditation, note down on paper, using a lead pencil for the convenience of the erasure, your mental deductions of the case under your observation, also, the limitations that are most likely to lead one in error. Then write down in ink *the mistakes that you have made under the same conditions.* Make three briefs. Take these to the *highest court of reason, weigh them each separately and collectively and cross examine them from every angle of approach.* Now hand down to the patient your final decision and you will find that your clinical judgment will not be open to criticism should the opinion of a distinguished internist be desired by patient or friends.

As physicians having been assigned to the highest calling with but one single exception that of working for the divine master, let us not betray such a trust. Henceforth, let us strive, as physicians, not to sacrifice any clinical method of obtaining knowledge at the expense of another but assign to each method of clinical investigation its relative as well as its real value and to make use of both methods in the office and at the bedside when the clinical indications indicate their application.

Unless we are always alert we will overlook the typical signals of disease and never discover the many *atypical clues* that possess at time a high degree of clinical significance. "The wisest of us all become temporary blind to the obvious." "We do not see the forest for the trees." Limitations in diagnosis will never be entirely effaced or their number decreased until the eye is given time to see, the ear to hear, and the sense of touch, to perceive. Our temporary amaurosis of recognizing the typical as well as the atypical signs of disease can be guarded against and overcome to a large degree if we will call to mind and heed the advice given by the prince of clinicians, past and present, Sir William Osler, to a student who had failed to see enlarged glands on the opposite side of a patient's neck—namely: "to walk around and get another fresh point of view." Let us all walk around and by so doing we will lessen our mistakes in diagnosis, increase our mental efficiency as to precision in thinking and in observation, and we will all reach a higher degree of perfection in the art of diagnosis.

THE DOCTOR KNOWS LIFE'S ACTUALITIES

The doctor is altogether a special kind of a person, says the *Boston Transcript.* His illusions are few. His inside information is enormous, and if, now and then, he wears a superior smile, forgive him. He has probably just heard some remark which he knows to be fatuous or hypocritical. Again, his jokes are likely to be a bit technical, and his view of life materialistic. But if he has a brand of idealism, you can put your trust in it, for he has learned it in a hard school, and it is genuine. He has faced the worst, and can still believe the best. And if he has a religion, it will be worth coming at, for he wrested it out of the actual battles of good and evil in our common life seen at close range.

UNTREATED OR INADEQUATELY TREATED SYPHILIS

In the *American Journal of Syphilis,* Stokes and DesBrisay state that in an examination of about 413 cases of syphilis untreated, treated with small amounts of mercury and iodide by mouth, and treated by modern though inadequate methods, the following observations developed:

1. There is a spontaneous tendency to Wassermann negativity in untreated syphilis with lapse of time in human beings, which amounts to 30 per cent in the work of an ordinary diagnostic practice.

2. Wassermann negativity in the blood seems to be particularly an attribute of neurosyphilis.

3. There is an age duration gradient in the spontaneously progressive case which leads to ultimate complete serologic negativity in both the blood and fluid in time. This serologic negativity is not necessarily synonymous with symptomatic arrest. Seven and a half

per cent of 225 cases were symptomatically progressive in the face of complete serologic negativity.

4. Spontaneous arrest, symptomatic and serologic, occurred in less than 1 per cent of 208 untreated cases. Following treatment by mouth, 6 per cent were totally arrested and 10 per cent were serologically negative on blood and fluid.

5. Cutaneous and osseous syphilis appear to protect against, or are mutually exclusive of neurosyphilis.

6. There is evident that time is an essential element in the defense mechanism, which acts to retard rather than to prevent late or grave complications.

Society Proceedings

ADAMS COUNTY

Special Meeting, May 1, 1925

This was a special meeting of the Society called by the President at the request of six members. The request read as follows:

"To call a special meeting of the Adams County Medical Society on May 1, 1925, at 11:00 A. M. Purpose, for consideration of what is best for the interest of the Public and the desirability of making definite recommendations to the Board of Health."

(Signed)

J. A. KOCH, E. ZIMMERMAN.
F. T. BRENNER, T. B. KNOX.
J. R. POLLOCK. FRANK COHEN.

The meeting was called to order at the Chamber of Commerce at 11:05 A. M. by the Chairman, Dr. C. D. Center, and the following members were present: Drs. J. W. E. Bitter, Pearce, Pollock, A. H. Bitter, Koch, Nickerson, Montgomery, Baker, Pfeiffer, Brenner, Cohen, Harris, Center, Swanberg, Reiffert, Collins, E. Zimmermann, Beirne, W. E. Mercer, Williams, Wells, Knapheide, Blomer, J. C. Steiner, W. Zimmerman, Germann-Sinnock, Jurgens, and Stevenson, there being a total of 28.

The President briefly told the reason for calling a special meeting. The Secretary read a communication that had been handed to him as follows:

"April 30, 1925.

"To the Adams County Medical Society:

Believing that it is for the good of our local hospitals and for the Public in general, we recommend that: The Adams County Medical Society endorse and recommend Dr. Frank Cohen to the Board of The Quincy Public Health District, for the appointment of District Bacteriologist for the coming year."

(Signed) F. T. BRENNER.

Dr. Brenner made a motion that the above resolution be adopted. Seconded by Dr. Montgomery. This was followed by a lengthy discussion, the following members taking part in the discussion: Drs. Nickerson, Pollock, A. H. Bitter, Koch, Pearce, Beirne, Montgomery, Center and Baker, which finally resulted in the resolution being adopted by a vote of 15 for and 6 against. Dr. Koch made a motion that the President give out the publicity of the meeting. This was seconded, but Dr. A. H. Bitter made a substitute motion that Dr. Koch, as chairman of the Public Health Committee, give out the publicity. Seconded and carried. Dr. Pearce spoke of the advisability of having the publicity concerning the convention given out by him. Dr. Swanberg thought it would be wise for the Society to go on record, at this time, delegating some one to give out the publicity of each meeting that was held, and to have the exclusive authority to do this regularly, unless some other individual was especially authorized to give out the publicity for any particular meeting. Dr. Brenner incorporated this thought in a motion which was seconded by Dr. Stevenson and carried.

Dr. Koch called the attention of the Society to the fact that a very obnoxious chiropractic bill was at present before the Illinois Legislature, and that it was imperative that our representatives in this district be informed this week-end, to be sure to vote against it when it came up for final consideration in the General Assembly next week. Dr. Swanberg made a motion that the Legislative Committee be given full power to take such action as they wished, to assure our representatives of this vicinity being fully informed of this Society's opposition to this measure. Seconded and carried.

The Secretary read an invitation from the Lee County (Iowa) Medical Society to come to their meeting at Keokuk on May 7. He also called the attention of the members to the desirability of placing their orders at this time for the new A. M. A. auto emblem.

Adjournment was made at 12:00 o'clock noon.

HAROLD SWANBERG, M.D.

ADAMS COUNTY

May 11, 1925

This was the regular meeting of the Adams County Medical Society held at the Chamber of Commerce and was called to order about 8:25 P. M. with the President in the chair. Dr. C. C. Rogers of Chicago being the only guest, made a total attendance of 39.

The Secretary read the minutes of the April meeting and the special meeting held on May 1. Dr. Beirne made a motion that a certain portion of the April minutes be omitted due to the fact that a motion was made and not seconded. This motion was seconded and carried. The President then ordered, with the exception of the above correction, the minutes stand approved as read. Dr. Koch reported for the committee on Public Health and Legislation and stated that he arranged for a series of speakers in the public schools during Public Health Week and also stated what had been done to combat the Chiropractic Bill that was at present before the Illinois State Legislature. Dr. Pearce, McReynolds, Irwin, Bowles and Wells spoke on the various phases of the Illinois State

Medical Society convention. Dr. McReynolds presented a transfer card of Dr. C. R. Bates from Omaha, Nebraska, for membership in the society. This was ordered turned over to the Board of Censors. Dr. Swanberg read for the first reading a proposed change in the By-Laws of the society to the effect that Article I of the Appendix, which pertains to the order of business, read as follows: "The Order of Business shall be as follows, at the annual and monthly meetings." 1. Call to order. 2. Reading of regular essays and clinical reports. 3. Reading of minutes of last regular meeting and of any special meeting, since the last regular meeting. 4. Reports from committees. 5. Unfinished business. 6. Reading of business correspondence. 7. New business. 8. Reading of applications for membership. 9. Report of the Censors. 10. Voting on candidates for membership. 11. Report of the officers at the annual meeting. 12. Election of officers. 13. Reading of scientific correspondence. 14. Reading of volunteer essays and clinical reports. 15. Announcement. 16. Adjournment.

The object of this change in the By-Laws was stated as being for the purpose of having the regular scientific program first instead of the business. It was thought that this change in the By-Laws will prove a great inducement for our out-of-town members and physicians in neighboring towns to attend our meetings, due to the fact that they could get away earlier and would not be burdened with listening to our business discussions in which they might not be interested.

Dr. C. C. Rogers of Chicago, Associate Professor of Surgery in the College of Medicine, University of Illinois, gave a stereopticon talk on the "Treatment of Injuries to the Skull and Brain," which proved very interesting. Dr. Rogers' paper was discussed by Drs. Miller, Koch, Williams, Steiner, Jurgens, Montgomery and Baker and finally closed by Dr. Rogers himself. Dr. Cohen and Dr. Baker gave an interesting case history and demonstrated a pathologic specimen of a case of "Aneurysm of the Popliteal Artery." Dr. Center asked to be excused from giving his case report that had been assigned to him for this meeting. Dr. Koch made a motion that we extend Dr. Rogers a rising vote of thanks for coming to Quincy to address the society. Seconded and carried. The President called the attention of the membership to the excellent Convention Number of the Quincy Medical Bulletin and stated that it was something that the society and every member should feel proud of. Dr. A. H. Bitter made a motion that we extend the Secretary a rising vote of thanks for the efforts he had put forth to get out this number. Seconded and carried. The Secretary thanked the members for their appreciation of his efforts and stated that he regretted because of insufficient finances, we were unable to send a copy of the Convention Number to every physician in the State, as was originally planned. However, copies of the Bulletin had been sent to the President and Secretary of every county society in Illinois, as well as all the special societies, enclosing with each copy a printed card reminding them not to fail to induce the members of their society to come to Quincy to attend the convention next week. Copies were also sent to the President and Secretary of all the county societies in the states of Missouri and Iowa with a card enclosed inviting them and their members to attend. Dr. Caddick asked how many orders had been received for the new A. M. A. Auto Emblem. The Secretary stated that 32 had already sent in money for the emblem and about 30 of that number specified that they would pay the additional cost if one was secured with the name of the Adams County Medical Society on it. Dr. Miller made a motion that the society adopt the new A. M. A. Auto Emblem as the official emblem for the society and that the society order 50 emblems with the name of the Adams County Medical Society placed on them, these emblems to be sold to the membership, the society Treasury being reimbursed for the expenditure as rapidly as the emblems were sold. Seconded and carried.

Adjournment was then made about 11:20 P. M.

HAROLD SWANBERG, M.D.,
Secretary.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Diagnostic Clinic, May 13, 1925

The Diagnosis of Acute Surgical Abdominal Lesions .....Allen B. Kanavel

Talk on Phases of Abdominal Surgery.....
...J. Basil Hall, President British Medical Society

The Treatment of Acute Surgical Abdominal Lesions .....A. J. Ochsner

HENRY COUNTY

Tuesday, May 12, at 4 P. M., over one hundred doctors from Henry County and surrounding towns assembled in the lecture room of the Public Library, Kewanee, Illinois, to listen to one of the most interesting scientific programs rendered here in many a day.

The first paper was given by Dr. Dean Lewis, professor of surgery, University of Illinois, professor-elect of surgery, John Hopkins University, on "Bone Tumors." The second paper was given by Dr. Charles A. Elliott, professor of internal medicine, Northwestern University Medical School, on "Chronic Cholecystitis." The last paper was given by Dr. Allen B. Kanavel, professor of surgery, Northwestern University Medical School on "Differential Diagnosis of Appendicitis, Peptic Ulcer and Gall Bladder Disease."

At six o'clock the meeting adjourned to the Kewanee Club Rooms where a banquet was served in honor of Dr. Lewis, who, as a former Kewanee boy, entered the medical profession and has so recently been honored by appointment to the Chair of Surgery, at John Hopkins University, Baltimore.

There were more than one hundred plates spread

for the banquet. Several business men, friends of Dr. Lewis, were present also as guests of the Henry County Medical Society. A very elaborate musical program, rendered by Kewanee artists, was a feature of the evening. Toasts, under the direction of Dr. John H. Oliver, Kewanee, as toast master, were given by Dr. Allen B. Kanavel, Dr. Chas. A. Elliott and Mr. Leo H. Lowe, Editor of "Kewanee Star-Courier" and a lifelong friend of Dr. Lewis'.

The Henry County Medical Society presented Dr. Lewis with a fine traveling bag in recognition of his many services to them as a society. Indeed the scientific program and the evening banquet were both fitting tributes paid by the old home town to one of her deserving sons."

C. P. White,
Secretary, Henry County Medical Society.

McHENRY COUNTY

Meeting of the McHenry County Medical Society held at Woodstock, Illinois, May 8, at which there was a large attendance. The officers elected for the ensuing year were:

Dr. W. H. Bailey, Hebron, president; Dr. C. F. Bascus, Woodstock, secretary.

The Doctors were interested in vetoing the Chiropractic Bill which is now before the House at Springfield, Illinois, and a unanimous vote was made in favor of sending each of the representatives of this District a telegram expressing the wishes of the Society in voting against this bill.

A very interesting paper was read by Doctor Frank D. Moore of Chicago on preventive surgery.

C. F. Bascus, M. D.,
Secretary.

WILL-GRUNDY COUNTIES

The Will and Grundy County Medical Societies have united and formed the Will-Grundy Medical Society.

Weekly meetings have been held since the first of the year. The speakers include Drs. Julius Hess, B. H. Moore, Carl Davis, Wilbur Post, S. J. McNeill, all of Chicago; Dr. Ball of the State Health Department; Mr. Ginty, vice-president of the Fort Wayne Medical Protective Co., and also Drs. Alfred Houston, Raymond Brown, H. N. Flexer and L. B. Andrews, all of Joliet.

Our attendance has been between twenty and fifty at each meeting.

The meetings are now discontinued for the summer months.

George H. Woodruff, M. D.,
Secretary.

Marriages

Harold Fonseca Da Costa to Miss Elizabeth Zulfer, both of Chicago, May 6.

Alfred P. Meriwether, St. Jacob, Ill., to Miss Lavona Collins of Edwardsville, March 3.

Paul G. Pomeroy, Marengo, Iowa, to Miss Ottilie Scherer of Chicago, recently.

Sydney S. Schochett, Chicago, to Miss Rosalind Bael of New York, April 7.

Robert Mage Sutton, Peoria, Ill., to Miss Margaret Livingston Bailey of Pekin, April 24.

Personals

Dr. Willis B. Young, St. Louis, addressed the Madison County Medical Society, Edwardsville, May 1, on "Large Ovarian Cysts."

At the annual meeting of the Chicago Council of Medical Women, Dr. Mary E. Hanks was elected president, and Dr. Florence D. Johnston, secretary.

Dr. George H. Simmons, Editor and General Manager Emeritus of the American Medical Association, recently returned to Chicago after a tour of almost ten months through India, China and Japan.

Dr. Lester R. Dragstedt, professor of physiology and pharmacology, Northwestern University Medical School, addressed the Chicago Society of Anesthetists at the Morrison Hotel, May 26, on "The Mechanism of Surgical Shock."

Dr. William C. Woodward, executive secretary of the Bureau of Legal Medicine and Legislation, American Medical Association, addressed the Chicago Society of Industrial Medicine and Surgery, May 4, on "The Medical Profession and Workmen's Compensation Laws."

Mr. J. Basil Hall, President of the British Medical Society, was guest of honor at a dinner given by the Chicago Medical Society at the Hamilton Club, Wednesday evening, May 13, at 6:00 p. m., preceding the meeting of the Society.

Dr. Erwin P. Zeisler was recently elected a member of the American Dermatological Association and president of the Chicago Dermatological Society.

Dr. Frank Smithies, professor of medicine, University of Illinois, delivered the address in medicine at the annual meeting of the Kansas State Medical Society, May 6. Dr. Smithies spoke upon "The Modern Conception of Peptic Ulcer and Results Following Non-Surgical Management by the 'Physiologic Rest' Method." His resignation from the position of physician in chief and head of the department of internal medicine at St. Elizabeth's Hospital, Chicago, was recently announced.

News Notes

—Ground was broken, May 8, for the construction of five of the six buildings that will house Northwestern University's schools, to be erected at a cost of $5,350,000, on McKinlock Memorial Campus at Lake Shore Drive and Chicago Avenue. Among the speakers at the ceremony were Mayor Dever of Chicago; Robert W. Campbell, president of the board of trustees; Elbert H. Gary, of the U. S. Steel Corporation, and Walter Dill Scott, president of the university. Those who made possible the construction of the buildings are: Mrs. Montgomery Ward, who gave $3,000,000, for the medical-dental center; Mrs. Levy Mayer, $500,000 for the law school building; William A. Wieboldt, representing the Wieboldt Foundation, $500,000, to complete the school of commerce; George A. McKinlock, $500,000, which made possible the purchase of the campus; Mrs. George R. Thorne, $250,000, to erect an auditorium, and Elbert H. Gary, $100,000 for the Gary Law Library.

—Construction has begun on the $225,000 addition to the St. Francis Hospital, Freeport.

—The excavation for the new Madison County Tuberculosis Sanitarium has been completed, and construction work is under way.

—Ground has been broken for a 325-bed Veterans' Bureau Hospital at Great Lakes, to be erected at a cost of $809,000, for the treatment of neuropsychiatric cases.

—A sanatorium, which will accommodate 100 tuberculosis patients, is being constructed for Madison County at Edwardsville at a cost of $175,000, the citizens having voted a tax of 1.5 mills to continue over a ten-year period.

—Beverly Farm Home and School for Nervous and Backward Children, Godfrey, is undergoing improvements, including the addition of a dispensary and small hospital department. Its capacity will be increased to care for about twenty more children.

—Contracts have been let for the new Mount Sinai Hospital, Chicago, which will have 300 beds. The building will be five stories high, constructed so as to permit the addition of six stories.

—The Chicago Surgical Society held a symposium at the Alexian Brothers Hospital, May 1, Dr. Arthur Dean Bevan speaking on "Tumors of the Breast;" Dr. Kellogg Speed, "Tumors of the Male Breast," and Dr. Emil G. Beck, "What Should Be Done With the Advanced and Recurring Cancer of the Breast." The discussion was opened by Drs. Dean Lewis and Vernon C. David.

—The Illinois Department of Public Health states that there were 126 cases of smallpox reported in Massachusetts, 2,265 in New York, and 26,352 in Illinois in the six years ending Dec. 31, 1924. A compulsory vaccination law is enforced in Massachusetts and in cities of the first class in the state of New York. Vaccination in Illinois depends largely on moral suasion; there are many unvaccinated persons and much smallpox.

—The dedication and official opening of the British Old People's Home, Twenty-ninth Street and McCormick Avenue, Hollywood, erected at a cost of more than $250,000, took place May 24, at 2:30 p. m. Mr. Samuel Insull will preside. Judge Holdom and the British Consul General, Mr. H. A. Richards, will give addresses.

—The construction of the first unit of the new Chicago Memorial Hospital at Thirty-third Street and Groveland Park, will begin this summer. It will accommodate 100 patients. The cost, about a half million dollars, has been pledged, as has an equal amount for endowment. The new building will face Lake Michigan and have 640 feet frontage on Groveland Park.

—Following a hearing, May 6, before representatives of the federal prohibition office, the liquor licenses of twenty-three physicians and druggists of Lee and Ogle counties were revoked. The charges were that the prohibition regulations with regard to filling prescriptions had been violated, and that prescriptions had not been issued and filled in good faith.

—At the last meeting of the Chicago Ophthalmological Society, May 18, Dr. Forrest J. Pinkerton, Honolulu, gave an address on "Eye Complications of Leprosy." There were discussions on glaucoma by Drs. Harry W. Woodruff, Joliet, Ill., Ephraim K. Findlay and Marshall Goldenberg, and another by Drs. Edward V. L. Brown and Hallard R. Beard.

—The state director of health reports that rabies has been endemic in animals for years in that part of Illinois known as "Little Egypt," and that it is gradually extending north. More than twenty-five persons in fifteen counties have been attacked by rabid dogs since January 1,

one as far north as Fulton County. No case of rabies has been reported in man this year, all exposed having taken the antirabic treatment. Twenty dogs and one cat examined (no two from the same locality) have shown the presence of rabies this year.

—The board of trustees of the University of Chicago announced, May 19, the establishment of the Douglas Smith Foundation for Medical Research, which makes available the income from about $1,000,000 to be used exclusively in the payment of stipends or salaries of members of the staff or fellows of the university engaged in medical research and expenses directly incident thereto. The donor, Douglas Smith of Chicago, has already turned over to the university securities valued at $800,000 and intends to turn over the remainder of the gift in 1925.

—The current issue of the *Quincy Medical Bulletin* is dedicated to the diamond jubilee celebration of the Illinois State Medical Society and the Adams County Society, both of which were founded in 1850, to be held in Quincy, May 19-21. It contains the program in detail, the list of exhibitors, a descriptive directory of the city of Quincy, and a brief history of the Adams County Medical Society and the state medical society, with short bibliographies and halftones of the early officials. There is also a hitherto unpublished paper on the cholera epidemic of 1849-1851 by the late Dr. Francis Drude, who was president of the Adams County Medical Society in 1881 and 1882, besides a list of members of the society and descriptive pages of hospitals and laboratories in Adams County.

—There are 10,977 cases of pulmonary tuberculosis under medical supervision in Chicago, according to Dr. Jacob J. Mendelsohn, physician in charge of the Stock Yards Dispensary of the Municipal Tuberculosis Sanitarium. Of this number 2,541 are under the care of private physicians. Beds available in tuberculosis institutions in the vicinity of Chicago total only 2,268. A large part of the tuberculosis problem rests therefore on dispensaries. There are eight full-time Municipal Tuberculosis Sanitarium dispensaries in the city, having twenty-three physicians and 135 field nurses, who cooperate with the health department, physicians, employers and other recognized agencies. The number of new cases examined is increasing, having been in 1920, 16,500; 1922, 31,854, and 1924, 32,460.

Deaths

WALTER H. ALLPORT, Chicago; Chicago Medical College, 1887; member of the Chicago Surgical Society; formerly on the staffs of the Alexian Brothers,' Cook County and St. Luke's hospitals; at one time surgeon to the Illinois Central Railroad; served during the World War; aged 62; died, April 21, at Marseilles, France.

CHARLES F. BOWEN, Chicago; Rush Medical College, Chicago, 1889 member of the Illinois State Medical Society; aged 65; died, April 16, of chronic nephritis and uremia.

PATRICK MAURICE BURKE, La Salle, Ill.; Medical Department of Columbia College, New York, 1880; formerly member of the board of education; aged 70; died, March 28, of pneumonia.

HENRY L. BURNETT, Raleigh, Ill.; Missouri Medical College, St. Louis, 1881; aged 76; died, April 21, of carcinoma.

WILLIAM M. EDDLEMAN, Anna, Ill.; University of Tennessee College of Medicine, Memphis, 1882; member of the Illinois State Medical Society; formerly health officer and mayor; aged 67; died April 1, of aneurysm of the abdominal aorta.

JAMES D. HART, Vienna, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1885; St. Louis College of Physicians and Surgeons, 1889; formerly a druggist; aged 66; died, April 7.

GEORGE WASHINGTON MARKLEY, Belvidere, Ill.; Illinois Medical College, Chicago, 1904; member of the Illinois State Medical Society; aged 55; died, April 8, of cerebral hemorrhage.

HENRY M. MARKS, Champaign, Ill.; Jenner Medical College, Chicago, 1896; aged 61; died, April 17, at the Burnham Hospital, of lobar pneumonia.

PETER GUSTAVE PETERSON, Zion, Ill.; Bennett Medical College, Chicago, 1914; aged 53; died April 10, at the Henrotin Hospital, Chicago, of heart disease, following an operation for gallstones.

REUBEN SCHURTZ, Streator, Ill.; University of Michigan Medical School, Ann Arbor, 1876; member of the Illinois State Medical Society; aged 72; died, April 11, at Miami, Fla., of lobar pneumonia.

E. C. SWEET, Chicago; Hahnemann Medical College and Hospital, Chicago, 1884; formerly on the staff of the Masonic Orphans' Home; aged 79; died suddenly, April 19, of heart disease.

JAMES HULBERT VADAKIN, Bethany, Ill.; Kentucky School of Medicine, Louisville, 1891; aged 64; also a druggist; died, April 27, of nephritis.

MASON FRANKLIN WOODS, Waverly, Ill.; St. Louis University School of Medicine, 1908; aged 45; died, March 30.

EUGENE E. HESTER, Paxton, Ill.; Eclectic Medical Institute, Cincinnati, 1899; member of the Illinois State Medical Society; aged 53; died April 28, of arteriosclerosis.

JOHN H. VEATCH, Marine, Ill.; Hering Medical College, Chicago, 1898; a member of the Illinois State Medical Society; aged 64; died, May 9, at St. Joseph's Hospital, Highland.

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WHAT DOES THIS PORTEND?

The following is taken from an address by a Professor Freeman, M. D., of the Johns Hopkins School of Public Health delivered at the New York health officers' conference. This abstract and more of this speech is published in the weekly bulletin of the California Board of Health:

"It seems probable that for rural areas at least medical health service of the future will center about the county hospital. Such a hospital, with a whole-time staff on a salary basis, with its attached out clinics, will be the chief source of medical service. To it will come all the seriously sick of the county, all maternity cases, all obscure chronic complaints, for diagnosis by every available means and for treatment, the best that can be had. Out from the hospital will go the visiting nurses, covering the whole county, doing what we know as public health nursing as well as ordinary visiting nursing, if there is any distinction between the two. The private practitioners of the county will be mainly concerned with the health supervision of their patients. They will probably be paid on an annual fee basis and will have approximately 1,000 patients each. Everyone will be under constant supervision. There will be no need of much of what we ordinarily call health work. It will be the routine, normal activity of the whole medical service. The medical director of the county will be in charge of the whole organization, under a board of trustees. The whole will be supported in part from State and local funds, but largely from the payments of patients. The savings in medical and surgical fees which would result from having a single consulting physician and a single surgeon, kept constantly busy with an even flow of material, instead of having several practicing over a large area and spending most of their time going to and fro as at present, 'would be great.'"

This speech was not delivered in Moscow, but in New York. There were other addresses of the same general trend, although they did not go quite so far nor were they quite so frank in the statements of purpose. Recently, another public health specialist from New York was paid to come to San Francisco and "survey" the hospital and health field. He recommended that the San Francisco County Hospital be opened to patients who can pay small fees. This, of course, would be an important practical step in developing the program so frankly outlined by Professor Freeman.

C. S. J. of M.

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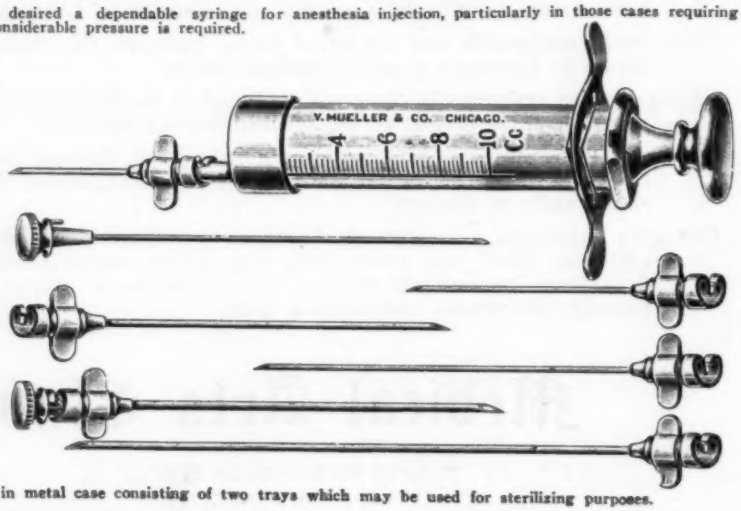

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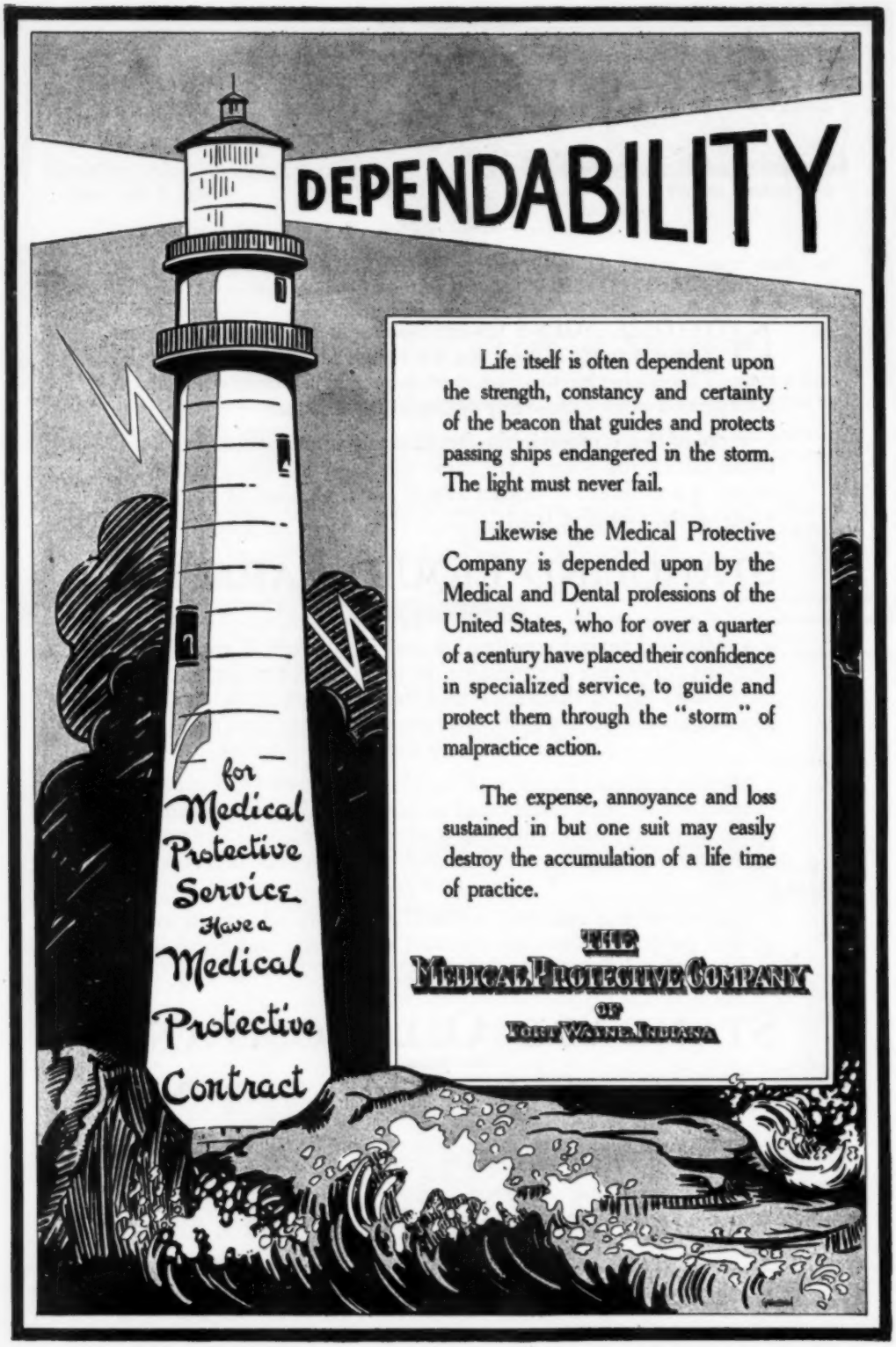
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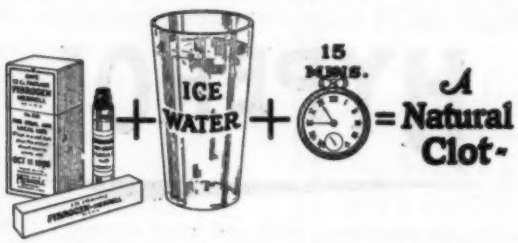

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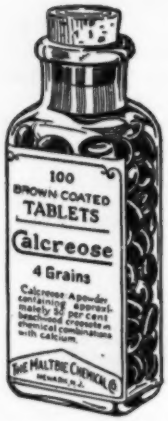

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WATER	1.50%	88.27%
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* 4½ Ounces to a quart of water

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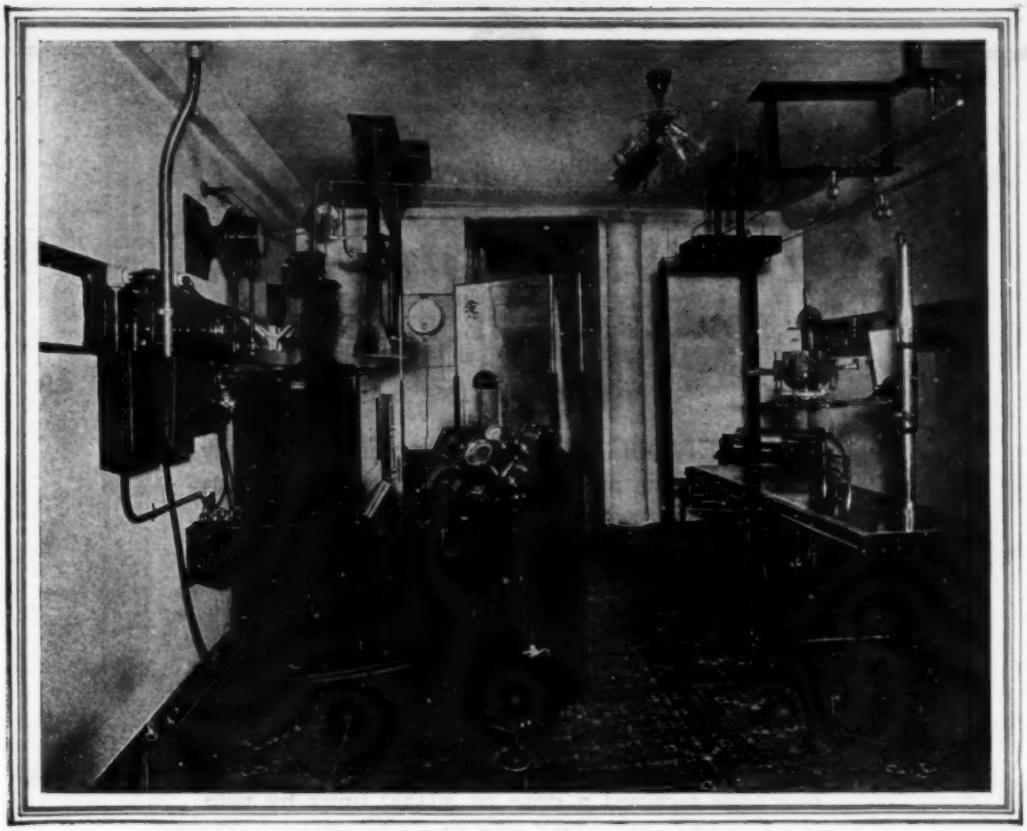

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Book Reviews

THE SURGICAL CLINICS OF NORTH AMERICA (Issued serially, one number every other month). Volume V, Number I (New York Number—February, 1925). 294 pages with 142 illustrations. Per clinic year (February, 1925, to December, 1925). Paper, $12.00; Cloth, $16.00 net. Philadelphia and London. W. B. Saunders Company.

The contributors to this number are Doctors Bancroft, Beer, Berg, Coley, Elsberg, Furniss, Gibson, Green, Lilienthal, Lowsley, Moorehead, Pool and Wood.

INTERNATIONAL CLINICS. Volume I, Thirty-fifth Series, 1925. Philadelphia and London. J. B. Lippincott. Price

The contributors to this volume are Doctors Wayne Babcock, Philadelphia; Lewellys F. Barker, Baltimore; Hubert Blanc, Paris, France; Frank C. Bohannan, Louisville, Ky.; James Burnet, Edinburgh, Scotland; Henry W. Cattell, Philadelphia; James Coupal, Washington, D. C.; Charles Greene Custon, Geneva, Switzerland; Thomas Dorsey, Louisville, Ky.; Charles J. Drueck, Chicago; L. Wallace Frank, Louisville, Ky.; Louis Frank, Louisville, Ky.; Alfred Gorden, Philadelphia; Ralph C. Hamill, Chicago; Arthur Van Harlingen, Philadelphia; C. Judson Herrick, Chicago; J. Clarence Keelr, Philadelphia; I. A. Lederman, Louisville, Ky.; Charles D. Lockwood, Pasadena, Calif.; Rudolph Monaco, Louisville, Ky.; Edouard Retif, Rome, France; Max. Thorek, Chicago.

DYSPEPSIA: ITS VARIETIES AND TREATMENT. By W. Soltau Fenwick, M. D., B. S. (London), Late Physician to the Evelina Hospital for Sick Children, London. Second Edition, Revised. Octavo of 515 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1925. Cloth, $6.00 net.

The second edition of this work has been carefully revised and the chapter dealing with displacements of the Vicera has been rewritten.

THE MEDICAL CLINICS OF NORTH AMERICA (Issued Serially, one number every other month.) Volume VIII, Number V, March, 1925. (Boston Number.) Octavo of 247 pages and 21 illustrations. Per Clinic year (July, 1924, to May, 1925.) Paper, $12.00; Cloth, $16.00 net. Philadelphia and London. W. B. Saunders Company.

The contributors to this number are Doctors Berglund, Blake, Blumgart, Buckman, Christian, Fitz, Frothingham, Hill, Jackson, Lord, Minot, Murphy, Ohler, Peabody, Sturgis, Talbot, Ullian, Wearn, White.

DIET IN HEALTH AND DISEASE. By Julius Friedenwald, M. D., Professor of Gastro-Enterology in the University of Maryland School of Medicine, Baltimore; and John Ruhrah, M. D., Professor of Diseases of Children in the University of Maryland, Baltimore. Sixth edition, thoroughly revised. Octavo of 987 pages. Philadelphia and London. W. B. Saunders Company. 1925. Cloth, $8.00 net.

The fact that this book has gone through six editions in rapid succession speaks volumes in its praise. One need only to compare this edition with the first one put out by the same author to realize what immense strides have been made in our knowledge of nutrition both in health and in disease. Chemical and biological methods have been applied to this subject and the results have been nothing short of marvelous. The book is entirely practical and is free from the exploitation of fads and fancies.

PERSONAL HYGIENE APPLIED. By Jesse Feiring Williams, M. D., Professor of Physical Education, Teachers College, Columbia University, New York City. Second edition revised. 12mo of 414 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1925. Cloth, $2.00 net.

This work is intended for courses in high schools, colleges and schools of nursing. In this edition certain aspects have received more emphasis than in the first edition and those of minor importance have been curtailed.

ABT'S PEDIATRICS. By 150 specialists. Edited by Isaac A. Abt, M. D., Professor of Diseases of Children, Northwestern University Medical School, Chicago. Set complete in eight octavo volumes totaling 8,000 pages with 1,500 illustrations, and separate Index Volume free. Now ready, Volume VI containing 736 pages with 127 illustrations. Philadelphia and London. W. B. Saunders Company, 1925. Cloth, $10.00 per volume. Sold by subscription.

The previous volumes of this work have been commented on in our review columns. This volume covers the subject of body temperature and its regulation; typhoid fever; paratyphoid fever; typhus fever; acute rheumatic fever in children; diphtheria; laryngeal stenosis; intubation; tracheotomy; whooping-cough; variola; vaccination; varicella; asiatic cholera; influenza; tetanus; hydrophobia; foot- and mouth disease; erysipelas; mumps; scarlet fever; measles; rubella; filatow-dukes disease; epidemic meningitis; septicemia; general anesthesia; local and spinal anesthesia in children, etc.

DISEASES OF CHILDREN FOR NURSES. Including Pediatric Nursing, Infant Feeding, Therapeutic Measures Employed in Childhood, Treatment of Emergencies, Prophylaxis and Hygiene. By Robert S. McCombs, M. D., Associate in Medicine at the Philadelphia Polyclinic; Instructor of Nurses at the Children's Hospital of Philadelphia. Fifth Edition. Thoroughly Revised. Octavo of 581 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1925. Cloth, $2.75 net.

In this edition the author has kept abreast with the advancement of pediatrics without enlarging the book.

Additions have been made to all the chapters and that everything has been included which has proved to be important.

Several articles have been rewritten. New photographs have been added. Recent progress in infant feeding have been incorporated, including the preparation of the foods and mixtures.

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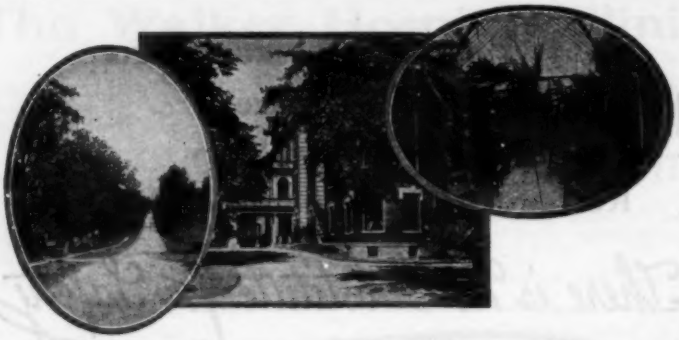

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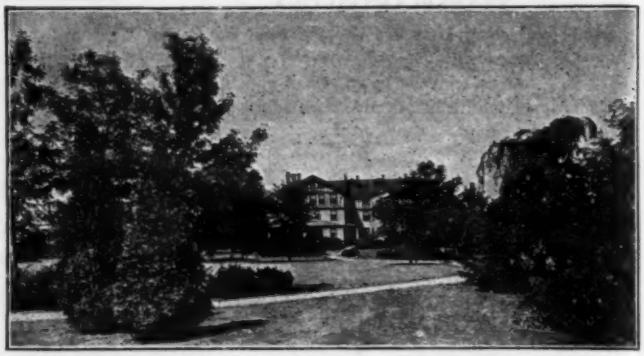

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A clergyman was conducting a funeral in a Western state when two shots were fired outside the church. The undertaker at once rushed out, but returned in a few moments, smiling.

"I've secured both these customers," he whispered to the parson with pardonable pride.—*The American Legion Weekly.*

WISE MAN

We see the Rev. Mr. Hight hopes to prove his "mental derangement" by showing that he once bit a mule on the nose. My husband, who is an ex-army man, says the fact that he bit the mule at that end proves his sanity.—*Ettabug in the Chicago Tribune.*

AS YOU WERE

"Clarence," she called. He stopped the car and looked around.

"I am not accustomed to call my chauffeurs by their first name, Clarence. What is your surname?"

"Darling, madam."

"Drive on, Clarence."—*The Daily News.*

"How d'ja lose your hair?"
"Worry."
"What d'ja worry about?"
"Losin' my hair."—*Amherst Lord Jeff.*

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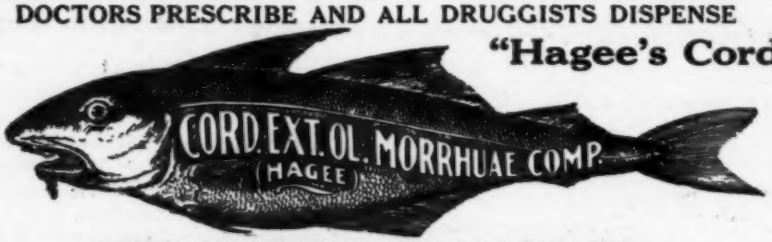

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Men are like birds, snared and caged, until set free by the Angel of Death.—*Avicenna.*

Life is not for working, but working is for life.
—*Herbert Spencer.*

For the world, I count it not as an inn, but an hospital; and a place not to live, but to die in.
—*Sir Thomas Browne.*

"A good business man is one who can buy goods from a Scotchman and sell them to a Jew—at a profit."

RADIUM EMANATION

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ANNOUNCEMENT

Dr. Robert H. Babcock desires to announce that beginning May first his Office Assistant is to be Dr. H. G. Reid, a graduate of the McGill Medical College, Toronto, Canada, and that Dr. Babcock's office hours will remain as heretofore from one to four P. M.

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IT'S GREAT TO BE AN EDITOR

It's great to be an editor,
To sit up late at nite,
And scratch your wool,
And throw the bull,
And write, and write, and write.
—Exchange.

SHOULD WOMEN SMOKE

Sixty sororities at the University of Michigan voted on the question of permitting girls to smoke in the sorority houses. Fifty-nine of the sixty voted against the practice.

There was a young lady from Siam
Who said to her lover, Young Priam:
"If you kiss me, of course
"You'll have to use force,
"But God knows you're stronger than I am."

Colleges are places where pebbles are polished and diamonds are dimmed.—*Robert Ingersoll.*